"We Seek to Serve and Not to Compete"

Volume XV No. 12

Price 20 nP.

Annual Subscription .. **Rs. 2·25**

Half-Yearly .. .. **Rs. 1·12**

Advertisement Rates on request

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10 DEC 1961 MADRAS

MADRAS INFORMATION

DECEMBER 1961

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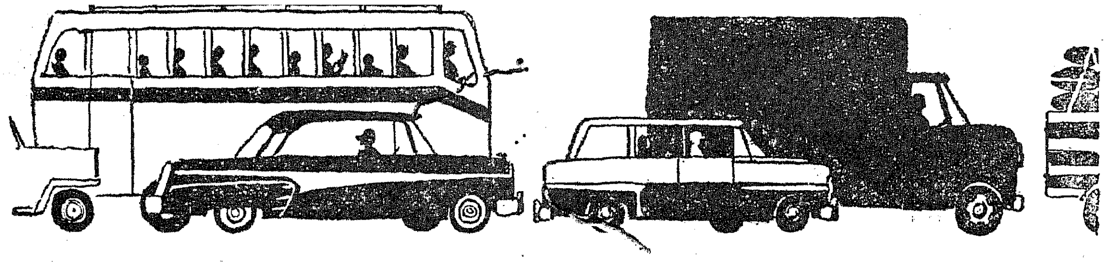
This month's cover

This issue of Madras Information is dedicated to the memory of Sardar Vallabhai Pattel, one of the makers of modern India, in connection with the eleventh anniversary of his death falling on December 15 (*see article inside*).



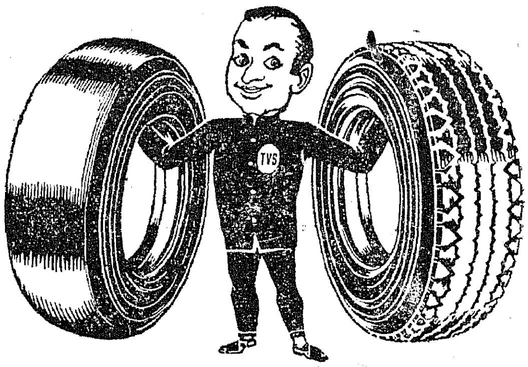
Road Transport Services maintained in spite of tyre shortage

TYRE RETREADING HELPS TO KEEP VEHICLES MOVING

Certain categories of truck tyres are in short supply. With the present volume of tyre manufacture, it may not be possible to meet in full even the replacement needs of Road Transport. Shortage of new tyres has become inevitable.

Today the retreading industry has assumed national importance. It is estimated that last year over 400,000 tyres were retreaded in India saving road transport operators nearly Rs. 21 crores.

Retreading can do much more: If tyres are retreaded in time, that is, when the tread is just wearing smooth, they can be retreaded over and over again; many truck tyres can be retreaded as many as three times. Retreading will not only save money for the operator, but may avert rationing and control of tyre supply.



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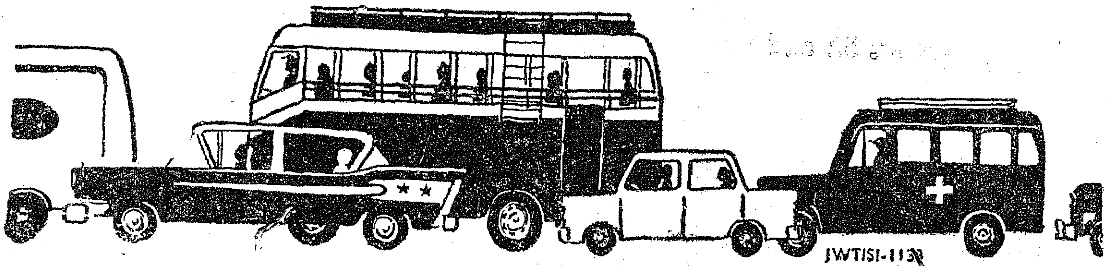

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MADRAS

Profile of a patriot

Mational integration is the dominant theme of the day and politicians as well as educationists are applying their minds to promote and consolidate this objective so vital for the nation's survival. In this connection it is impossible to forget Sardar Vallabhai Patel, who soon after independence effected the integration of over six hundred Princely States, a feat that until it was achieved appeared well nigh impossible. To mark the eleventh anniversary of his death which falls on December 15, 1961, this 'profile' touching on this aspect of his achievements is presented.

Probably the tragedy which befell the Indian Nation on December 15, 1950 when Sardar Vallabhai Patel breathed his last is second only to the loss earlier sustained by the country when Mahatma Gandhi, the Father of the Nation, fell to the bullet of a thoughtless assassin.

For, Patel is verily the maker of Modern India. It was the stern action of this strong, silent man of India that was responsible for the effective and speedy integration of the numerous princely States, big and small, after independence was won.

This solid achievement of his laid the firm foundation for the much-needed stability on which has been based the diverse constructive nation building activity which has characterised the Indian scene during the past decade.

Pessimists Rebuffed

Pessimists were many who believed that with the withdrawal of British rule from India the Princely States would retain paramountcy and would remain as so many sovereign, independent States, thus rendering Indian freedom a consummation without substance, a mere mockery. But these obstinate people failed to reckon with one powerful factor. And that was the Great Sardar who by his personality and dedicated action in the hour of trial brought about the integration of the States within a period so incredibly short and in a manner so staggeringly decisive that the prophets of doom stood once for all corrected.

It was of course declared by the Cabinet Mission in their memorandum on the States and Paramountcy that the British Government could transfer back the paramountcy surrendered to it by the States only to the States and not to an Indian Government. This was technically correct but the revolutionary changes taking place in the country invalidated it.

In this context it is most refreshing to recall that the Marquis of Hastings who was himself responsible for the establishment of British paramountcy in India foresaw with prophetic vision and clarity that this "paramountcy" would one day evaporate into thin air.

This remarkable passage occurs in a private journal maintained by him in 1818 wherein he has noted "The time, not very remote, will arrive when England will, on sound principles of policy wish to relinquish the domination which she has cordially and unintentionally assumed over this country and from it she may not recede. In that hour it would be the proudest boast that she used her sovereignty towards enlightening her temporary subjects so as to enable them to walk along in the paths of justice and to maintain with probity towards their benefactors that commercial intercourse in which she should then find solid interest".

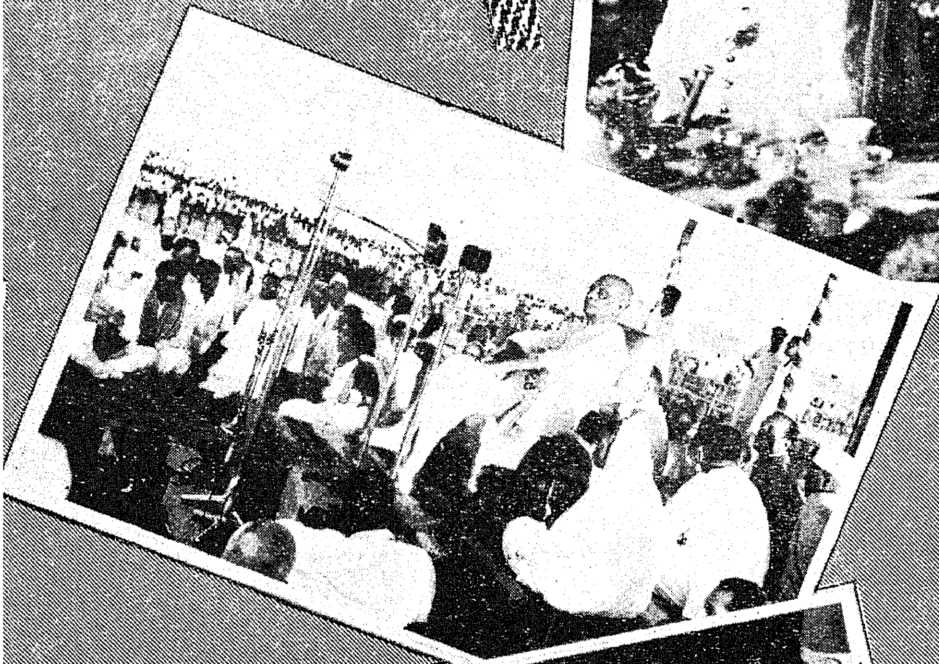
Full Support

The policy and action of the Sardar with reference to the States had the support of both the princes and the people both of whom fell in with the unmistakable trend of the times towards democratisation. Graceful enough to acknowledge the ready and willing co-operation of the princes in the process of integration and democratisation, the Sardar could however never mince matters and felt that it was only an accident that some people lived in the States and some outside them. He declared "none can segregate us into segments, no impassable barriers can be set up between us. I suggest that it is, therefore, better for us to make laws sitting together as friends than to make treaties as aliens". This was a call, friendly yet firm, which could not possibly be resisted.

In the course of an exposition of the policy of the Indian Government towards the States, the Sardar said with feeling "we are at a momentous stage in the history of

HIS LAST VISIT

Sardar Patel's last visit to Madras was in 1949 when the Bhavnagar Maharaja was the Governor and Sri O. P. Ramaswami Reddiar, the leader of the State Cabinet. Pictures show the Sardar in a characterestic pose; smiling in the company of the Governor, addressing a public meeting; being garlanded by leaders and with Chief Minister Reddiar.



India. By common endeavour we can raise the country to a new greatness while lack of unity will expose us to fresh calamities."

Golden Mean

In the process of integration, the Sardar, in fairness to the princes and the people struck a golden mean whereby the interests of both were balanced and preserved. Said the Sardar "in the world of to-day where distances are fast shrinking and masses are being gradually brought into touch with latest administrative amenities, it is impossible to postpone for a day longer than necessary the introduction of measures which would make the people realize that their progress is also proceeding at least on the lines of their neighbouring areas. Delays inevitably lead to discountent, which in turn results in lawlessness ; the use of force may for a time check the popular urge for reform but it can never succeed in eradicating it altogether. There was no alternative to integration and democratisation.

On behalf of the princes he said they "had, acquired by heredity and history certain claims on the people which the latter must honour. Their dignities and privileges and their means of subsistence on a reasonable standard must be assured. I have always held to the belief that the future of the princes lies in the service of their people and the country and not in the continued assertion of their autocracy. In conformity with these ideas, I felt that on release from increasingly onerous and awkward responsibility, but at the same time with their personal position and that of the ruling family fully safeguarded they would have opportunities of service which have hitherto been denied to them and which many of them are genuinely longing for and genuinely anxious to secure."

Cruel Blow

The Sardar declared that in future if the people of the States had any grievances, they could be only against the popular representatives and leaders who would be charged with their interests and welfare and not against the princes who had "by their act of abnegation purchased in perpetuity their right to claim the devotion of their people.

It was a cruel blow to the Government and people of India that the Sardar was claimed by death so soon after independence, especially so, when the nation needed the services of this Iron Man so badly. But within the short span of three years vouched him after freedom was won he fulfilled a major destiny for the nation as he alone could. The people of India can never forget him.

Free Primary Education

Most of India's 496 lakh children between 6 and 11 will be at primary school by the mid-sixties under the country's Compulsory Education Programme. Charged by India's Constitution to spread compulsory education among boys and girls upto 14, the Government have split the scheme into two stages for facilitating implementation. Free education for the age-group 6—11 has been accorded priority and similar education will be imparted to children between 11—14 after 1966. About 153 lakh additional children will be placed in schools and the outlay on primary education alone will be Rs. 209 crores as against Rs. 85 crores in the First Plan and Rs. 92 crores in the Second Plan.

To facilitate early implementation of the free compulsory education programme, about 150,000 primary school teachers will be trained every year in the country. In the last two years of the Second Plan, the Centre has given 100 per cent financial assistance to the State Governments for expanding teacher training facilities. In view of the very large gap between the proportion of boys and girls attending school special attention is being paid to girls' education in several ways. About 43 per cent of the total Plan allocation is meant for expansion of girls' education alone. Further, with a view to developing an effective system for enforcing compulsory attendance, the Union Education Ministry has prepared a model legislation.

6

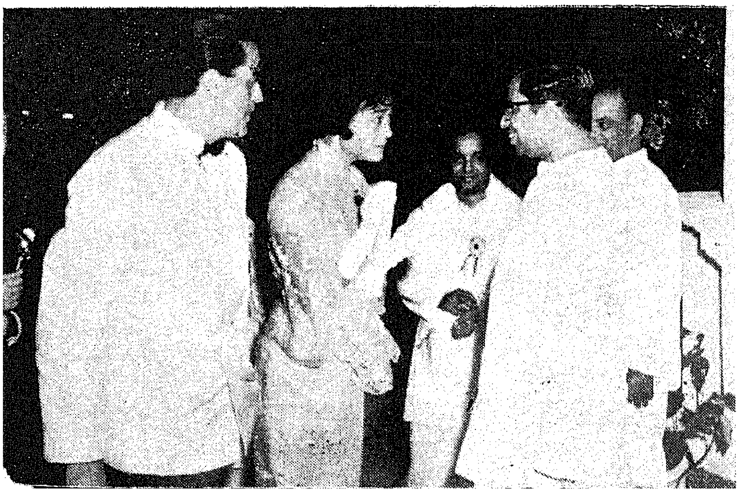
Towards Better Forestry

SRI M. BHAKTAVATSALAM, *Minister for Home.*

Delivering the convocation address at the Southern Forest Rangers College, Coimbatore, recently, Sri M. Bhaktavatsalam, Minister for Home, emphasised that the alert forest worker must remain constantly geared to adapt himself to the changing requirements of his calling especially as applied science and executive ability had necessarily to be blended to be of the greatest service to the people. He then proceeded to examine the new orientation, the new trends, that were shaping forestry practice in the south today. This article contains a major portion of the Minister's Convocation Address.

It is common knowledge that from ancient times our land was rich in forests and the lives of our early ancestors were influenced, in many ways, by the forests. All along in the past, forest products, even valuable timber, were there for anybody to take (literally for the the mere taking, even without asking) for personal needs or even for trade and profit. Except for areas preserved for their value for hunting game and for sport for Royalty and privileged persons, there were scarcely any restrictions on forest exploitation. Even in comparatively recent times, till barely a century or so ago, no one had the slightest misgivings about the inexhaustibility of our forests, about their free and ever ready bounty to all who resorted to them.

Finance Minister Subramaniam who gave a dinner at the Rajaji Hall to meet the delegates to the International Film Festival is seen in the picture greeting a guest artiste.



But conditions have changed rapidly since then. The heavy removals of teak in the eighteenth and nineteenth centuries from the West Coast forests, to feed the naval construction yards of the British Isles, led to the first apprehensions that such supplies could not continue indefinitely unless steps were taken to replant with young growth systematically. It was only a step to recognise that in the process of meeting even the growing needs of the local people alone, the forest resources of the land would be rapidly reduced if not exhausted. Even the forests themselves were in danger of being depleted beyond recovery, unless special protection was given and the forest maintained in a state of productivity (by carefully regulating their working in accordance with principles of forest observation and management as already evolved in advanced parts of the World, especially in Europe. For instance, it is a fact of comparatively recent history that all along the course of Cauvery from Bhavani to Erode, there were well stocked forests which were freely cut to supply fuel for the wood-burning locomotives in the early days of the introduction of Railways in the locality; as a result to-day, not even the last vestige of that long stretch of forest is left.

Strict Conservation Policy

Even so, time there was, not so long ago either, when India's Foresters were still content with maintaining intact such forests as were declared Reserved forests and

entrusted to their special care: and at best, realising what could be taken out of them without impairing the general stand for altering the nature of the forest in any way. We owe thanks however to those conservative Foresters of older days; for, it is their policy of strict conservation that has helped to build the fine forests estate that is our proud heritage to-day and to earn for our forestry practices a place second to none in the world of scientific forestry.

In this connection, I would recall with pleasure the very apt notice that foresters had put up the other day at Topslip for the information of the Prime Minister on his way to Parambikulam. The notice pointed out that a century of sound forest management had conserved the soil and moisture of the locality and made the Parambilkulam Project possible to-day. And as all of us know Parambikulam is only one of many similar projects that have become possible because of the well preserved forest cover in the mountain tracts of India.

Need for Realism

But such a policy of rigid conservation not correlated to the needs cannot continue if the people are to be served adequately; nor can foresters rest content with a state of affairs which may be satisfactory from a purely forest point of view but leaves the people starving for forest products and services. After all, the first object of State forest management (as of all other aspects of Government administration) must be to achieve the maximum of good for most, if not all the people. Against this requirement, the stark fact remains that our forests occupy not inconsiderable areas of land but they do not produce enough by way of economic returns, or forest products or services to meet the increasing needs of the people.

Even if we had no other difficulties, but we do have many (chief of which to-day is shortage of foreign exchange resources), the import of forest products would scarcely be feasible, at any time, merely for reasons of difficulties inherent in transporting such bulky merchandise. I understand that even the rich but rather remote forest reservoirs of the country itself (as in the Andamans islands or Assam) are proving difficult to tap mainly because of the prohibitive transport costs involved or difficulties of transport arrangements.

The Public Interest

It is obvious, therefore, that the forest areas, at least the more productive of them that also happen to be conveniently located or are easily accessible, must be most intensively developed. I do not for a moment want to be mistaken as even implying that we could or should

Mr. Orville Freeman, U.S. Secretary for Agriculture, who visited the City recently was received on arrival at the airport by Home Minister Bhaktavatsalam.

tinker in any way or take chances with the perpetuation of the prospective functions of the forests, especially of soil and moisture conservation. Where these protective influences of the forest are of prime or sole value, the management of such forests must aim at complete safeguards for them. Nevertheless, the time has come for us to recognise that land (which is so acutely in demand to-day for the bare existence of the people) cannot be merely held adversely, even in the name of "reserved forests". Every piece of forest land must be made to subserve the people in the best manner and to the fullest extent possible; it can no longer be that the people should stay content with what the technical expert merely chooses to make available from it; in other words, Forester's anxiety to retain forest lands as such (praise be to his earnestness of purpose) can find general support only if he can also convince the public that there could be no better use or fuller utilisation of the land in question.

Development Forestry

This is one of the major shifts in the concepts of use for forest lands that I have to ask the present generation of foresters to recognise. I must myself express here a word of caution. This advocacy of intensive land use can, I am conscious, often lead to rather intriguing situations where it would prove inconsistent with traditional uses of forest land, for instance as grazing grounds or (as is often the case) merely as exercising grounds for the large number of livestock (though frequently no more than scrub cattle) that are so much a part of our lives. But there can be little doubt that with the economic advancement of the peasant these practices will also change; but the forester will scarcely be advancing the cause of forestry if he tried to force the pace in such matters.

However, it should be possible, at least in respect of selected forest areas, for the age-long policy of 'conservation forestry' rapidly to give way to 'development forestry' if I may coin these terms. That these areas

Chief Minister Kamaraj relaxing in the company of the members of the Finance Commission at the party at Rajaji Hall, where he played host to them.

need not be vast either, is supported by the recent observation of a renowned foreign expert, Dr. Von Monroy, that if one per cent only of the best of India's forest lands were brought under intensive cultivation of fast-grown forest crops, the wood output of the country can be doubled. To explain further what I have in mind, it might be best to give an example.

In Europe, in the old days of solid wooden houses and wooden ships, the care of slow grown and durable hardwoods like the oak was considered good forestry: but with changing conditions of life and to some extent even in anticipation of such changes, in many of the advanced countries like Switzerland and Germany, hardwoods are being progressively replaced over the last 70 years or more with fast grown coniferous trees. In their temperate climate, they are lucky that they can choose to grow hardwoods or conifers on the same sites. Admittedly, in the tropical areas, we are not so advantageously placed. But species of Eucalyptus hold out equal promise for our areas, especially as they are adaptable to our localities and are also amongst the fastest grown trees anywhere in the world.

Another Aspect

This brings me to another aspect of forestry where again dynamic changes appear to be called for. I refer to the traditionally long periods of waiting associated with the growing of forest crops for timber. It has been explained to me that if we want to harvest one acre of mature teak annually, we have to maintain 60 or 70 acres under teak crops, since the teak tree takes that long number of years to attain economically satisfactory dimensions; and with some other timber species, the periods and areas involved are said to be considerably longer even. Admittedly, a supreme timber like teak will always remain in use and in good demand; and in Southern India (which is one of its few natural homes in the world), prudence would require that we must not deviate at all from continuing to grow teak in all sites really suited to it. Otherwise, forest crops have to be so raised and handled that they can be harvested at more frequent intervals.

Modern science has come to our aid in this respect also. By suitably processing any woods, a variety of products (plywood, laminated wood, hardboards, etc.) can be manufactured which would serve us as well as quality timbers alone could in the past. In the circumstances, it seems to stand to reason that our methods of management of the bulk of our productive forest areas must now be revised in order to raise fast-grown woods that produce large quantities per unit area and can be harvested after comparatively short periods.

Modern Trend

There is another modern trend also favouring such a change. In older days, it was a common sight to see a lot of timber used in the construction of any building, large or small; even to-day, in really old buildings, large timber beams are in evidence; and timber was used in many other constructional features, as well. But to-day the use of timber is restricted to a few items of construction only and timber has been wholly replaced by steel, concrete, etc., for heavy structural members.

Of course, I realise that this has not led to any drop in the quantities of timber in demand; but that is because there is far more construction activity nowadays; further, the demand is for a different kind, for processed wood and not so much for shaped or sized timbers, for flush doors instead of panelled or battened doors, for block boards and insulation boards instead of solid planks for panelling or ceiling, and so on.

Some Pointers

Again, as already observed, scientific Forestry began in India well over a century ago with the planting of teak in the Malabar forests. But the planting did not become a regular feature in Indian Forestry till well after World War I. In fact, it has been taken up on a really significant scale generally all over Southern India only in recent years, since 1951. But I would venture to suggest that intensive land use and maximised production cannot be achieved depending only on Nature's ways; and plantations will have to become the order of the day in all productive forestry undertakings in the near future.

In Madras State, we are planting (besides teak) quite a few exotics on a large scale successfully, such as Cashew, Casuarina, Wattle and Bluegum. In the neighbouring Kerala State, I am told that vast areas have been brought under teak plantations and more recen

interest includes introduction of varieties of fast grown Eucalyptus suited to their climatic conditions. No one visiting the neighbourhood of Bangalore in Mysore State can fail to notice the numerous patches covered by Casuarina and more recently by Eucalyptus hybrid. These are pointers clearly to the lines along which productive Forestry must and will develop in Southern India.

Gandhiji's View

But in our efforts to help productive or industrial Forestry along, we must not forget that the Forester's prime duty is to meet the needs of the rural people for forest products and for increased forest influences. In fact the necessity for the villager to obtain his requirements from within easy reach of his home, was aptly recorded by Gandhiji who said that in his concept of it, an ideal village would " have cottages...... built of materials obtainable within a radius of five miles". Surely, he must have had in his mind materials derived from trees and plants mainly. And yet, we know how few of our villages even to-day have any such resources.

All these years, we have been content with letting the villagers in the neighbourhood of forests derive only what could be conveniently spared from the forests,— whether it be grazing or fodder, fuel or small timber, green manure leaf or minor forest products. Villagers living away from the forests have had to make do with what they could find, such as cowdung and farmyard refuse for domestic fuel instead of wood. If that meant no manure for the fields, they just went without regular manuring, resulting (in turn) in the very low agricultural yields about which we have heard so much. I am sure no one will disagree with the view that this state of affairs must be remedied without delay, even if it can be done only at much cost.

Farm Forestry Scheme

It is indeed to be welcomed that in the Third Five-Year Plan, a scheme of " Farm Forestry " has been included and is being implemented on a National scale. This scheme aims at bringing the benefits that trees and forests along can confer close to every village. While the scheme will prove greatly beneficial all over India, it is of particular significance in the over-populated and yet arid and treeless tracts of the South. Population increases and additions to livestock have inevitably led in the past to the decimation of vegetation in most areas near villages, which were naturally not so strictly protected. It is the restoration of vegetation in the latter class of areas that would be the first objective of " Farm Forestry ".

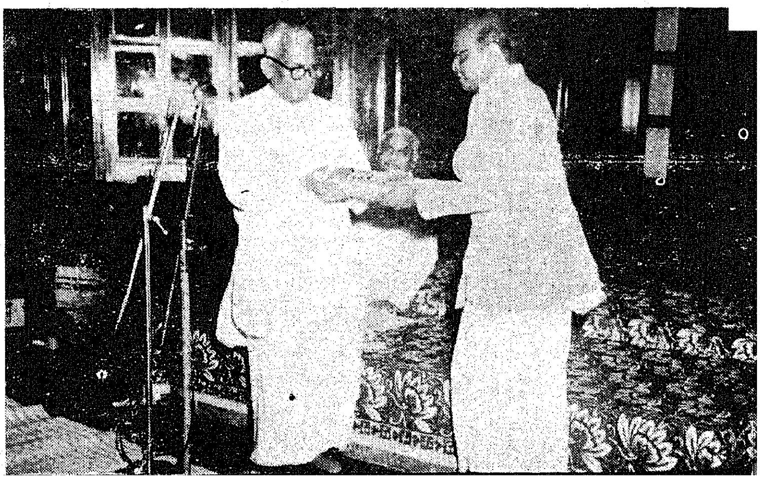
The Scheme will also require the forester to assist the people to grow trees wherever possible on their own holdings. In developing this scheme to the best advantage of the people, the forester will be playing (what to him, will be) a new role. He will have to be not a mere technical hand managing an area or a crop entrusted to his care and backed with governmental and legal authority, but a public worker doing his best to induce the people to appreciate the benefits that will accrue to them from Farm Forestry. He will have to secure their willing support, co-operation and participation in his efforts to re-clothe with green vegetation the vast areas of bare lands that are such a common sight to-day anywhere in our countryside.

The New Role

I do not know to what extent the young Forest Rangers passing out to-day have been specially equipped during this training course for playing this new role effectively, nor would I expect this regular forestry training course to have taken any special steps in this particular direction. Obviously, this course has educated them in the techniques and the science of Forestry in its widest import and it would be for the men individually to develop the application of selected techniques as suited to the particular circumstances in which each of them may find himself from time to time during his career.

Naturally, if the present generation of Foresters are to interest themselves actively in developing the forests in their care along lines such as I have indicated at random, they would rightly look for equal encouragement in their careers. I submit that this is not only not wanting but is available to the Forest Ranger of to-day in adequate measure. In the earlier days men with but poor basic qualifications elected to join this arduous and exacting profession. Naturally, they could not look forward to any considerable advancement in career, though it must be said to the credit of the men concerned and their training, that even under the inhospitable conditions then prevailing,

Home Minister Bhakthavatsalam who recently released the 8th Volume of Gandhiji's works in Tamil at a formal function in the City is seen in the picture receiving the book from Sri T. S. Avinashalingam Chettiar who presided on the occasion.



most of them did excellent work to improve our forests, and, the outstanding men among them did receive due recognition and advancement.

Improved Conditions

But working conditions in our forests have improved very noticeably; comparatively, even the forest areas and colonies are now free from malaria; they have become more accessible; and there are better living facilities nearer the forests. Further, opportunities for good work have also increased and in more recent years, there has been the advantage that most of the trainees joining the courses are men with higher basic educational qualifications. I must hasten to add that the trainees here must not run away with any wrong impression that they are over-qualified. On the other hand, they are still under-qualified initially, compared to the positions they may be called upon to fill during their careers.

Time was when in the Indian Forest Department, the Ranger could not ordinarily expect to be promoted even to gazetted rank but to-day not only a definite proportion of gazetted posts is set apart for such promotion, but selected Rangers (by dint of ability, effort and devotion to duty) have worked their way to the topmost levels of the department. I am happy to learn that some of the Conservators in the various States, and atleast one Chief Conservator of to-day, started their careers as Forest Rangers.

The Greatest Asset

Consistent with these opportunities for their own betterment and for shouldering greater responsibilities, the trainees leaving the portals of this college must continue to study and improve themselves in matters of technical knowledge, improved forest management and efficient administration. In this connection, I must advise all young Rangers now on the threshold of their careers, that conscious integrity must always remain their greatest asset (irrespective of all other considerations). Without absolute integrity and honesty, no executive officer can serve all the people he will come in contact with equally well; nor can he have the satisfaction of having done his work itself well. Neither should there be any mistaken thought that study and education are now over. In a technical field, self improvement has to be a continuous process all through life.

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A Joint Responsibility

Problems of Social Rehabilitation

S. R. VENKATARAMAN, *Secretary, Servants of India Society, Madras.*

In a democratic State like India, there cannot be any clear cut demarcation regarding the respective roles of Government and voluntary agencies in executing social welfare programmes. They are complementary and supplementary to each other. Rehabilitation problems are a common responsibility and there should be a joint co-operative endeavour of all the concerned parties to find effective solutions to them. This, in main, is the theme of this article wherein the author discusses the role of the State, public and voluntary organizations in implementing Social Welfare Programmes. This feature is presented in connection with the Ninth All-India Conference of Moral and Social Hygiene held in the City recently.

The responsibility of the State for the Social Welfare of its citizens is now accepted as one of its fundamental and primary duties. The manner and method of discharging that responsibility differ according to the character of the State. If it is monarchical, social welfare programme will depend mostly on the sweet will and pleasure of the Ruler. In totalitarian States like Russia and China, Social Welfare programmes are the sole responsibility of the State and there is no need for any public or voluntary welfare organization to supplement the Government's work, as the State is all in all and provides what these citizens need. In democratically governed States like England, America and India the responsibility is shared by the Government, the employer and the employee as well as voluntary agencies.

The trend in modern times in democratically governed countries is for the State to become a Welfare State. In olden days, not very distant, the State had assumed the role of a benevolent parent by providing such welfare services as were considered to be necessary for a Government to be called civilized, namely, the provision of facility for education, medical help and public health, water-supply, sanitation, etc., for its citizens. But under the colonial and imperialist governments these services were given step-motherly treatment. It is no wonder therefore that as far back as 1912 Gopalakrishna Gokhale the ablest of our parliamentarians persistently asked the Government to provide free and compulsory education to the Indian children. But no longer can the State confine itself to this restricted field of Social Service in free and independent India.

Changing Conditions

Conditions all over the world are fast undergoing changes demanding readjustment of the duties and responsibilities of States and larger and increasing participation of States to improve the lot of its citizens. Thus the scope and content of responsibility of the State for Social Welfare Services not only embraces all those services which are vital for the Welfare of the common man such as education divine services, medical aid, etc., but also the Welfare of the under-privileged in society such as the beggar, handicapped, old-aged, the under-nourished, the delinquents and the fallen. The State is now also compelled to take an increasing interest in all activities intended to promote the well being of its citizens by undertaking schemes for housing, town-planning, legal aid for the poor, improvement of prisons, provision of community centres, rural welfare, child welfare, youth welfare, labour welfare, social defence, rehabilitation, aboriginal welfare and other

Governor Bisnuram Medhi with Commonwealth Press Union delegates who visited the City recently and were guests at a Raj Bhavan reception.

forms of Social Welfare and in general, such other services as are needed by an individual for a comfortable life.

In India the responsibility for Social Welfare is shared by the Union, State and the local Governments as well as the voluntary agencies. While the Governments are sponsoring some items of welfare services directly under their auspices, they are also encouraging voluntary organisations to undertake social welfare work on a grant-in-aid basis. Whenever there are great disasters, as for instance the recent havoc caused by floods in the districts of our State and in other places in the country, or major problems affecting the Social Welfare of the people in the whole country and when the resources of the provinces and the people are unequal to meet the situation, the Central Government steps in to tackle the problem setting the machinery at its disposal in motion to grapple with the situation. Where the problem is complicated, vast and beyond the capacity of the State to tackle, the Central Government steps in with a liberal grant-in-aid to the Provincial Government.

The Problems

India is a welfare State. Its aim is to provide social security and social welfare for every citizen in the country. But as it is still an under-developed country, it has neither the means nor the man power to straightaway transform the entire social structure into an integrated, active, intelligent, healthy, vigorous and purposeful one. It has implemented various social welfare programmes in the First and Second Five-Year Plans depending upon the resources available, both Indian and Foreign. The solicitude of the Indian Government in this behalf may be understood from the steps it has been taking from time to time to tackle several of the social problems, particularly those requiring adequate legislation to empower officials to enforce acts with the help of the police, the Courts and the Public.

Among the various Social Welfare problems, the problem relating to maladjusted groups in our country, particularly those of women and children, has received the greatest attention of the Government in recent years. The Indian Penal Code provides for imprisonment up to 10 years and fines for the procurement, buying and selling of girls under 18 years of age for prostitution. Similar penalties have been prescribed for importing into India girls for prostitution. In addition there is the Suppression of Immoral Traffic in Women and Girls Act of 1956, which provides for the suppression of immoral trafic of women and girls according to the terms of the International convention signed by India in New York in May 1950.

Now all the provisions of this Act are in force all over India. The Act prescribes punishment for brothel keeping, for living on the earnings of prostitutes, for procuring, inducing or taking women or girls for the purpose of prostitution, for detaining a woman or girl in premises where prostitution is carried on, for prostitution, in or in the vicinity of public places and for seducing or soliciting for the purpose of prostitution. The setting up of an adequate number of protective homes for their rehabilitation and for the educational and vocational training of women and girls recovered and detained under the Act is also envisaged.

The Machinery

Thus the State has armed itself with sufficient powers to bring the offenders to book. For without adequate legislation and power conferred on the various officers of Governments, nothing would be possible to implement the programme of Social Defence. Though there is no Ministry of Social Welfare at the Centre, an agency known as the Central Social Welfare Board has been set up charged with the task of promoting and implementing the various social welfare schemes entrusted to it, such as Welfare Schemes for women, children and the handicapped. It has taken up the Social and Moral Hygiene and after-care programme as a part of its responsibilities. The aim is the after-care and rehabilitation of women and adults and children discharged from correctional, non-correctional and care institutions. The programme is implemented by the State Government with Central Government assistance. Forty-seven after-care homes providing appropriate training to the inmates, and 135 district shelters for receiving discharged persons and sending them to the Homes established under this programme were expected to be functioning as on October 1960.

Programmes which cast a statutory obligation on Government, may also be implemented within a liberal departmental frame work giving large scope for voluntary organisations to co-operate at the field level. If Welfare Services

relating to beggars, crime and prostitution which are widespread are to be tackled satisfactorily by voluntary agencies, they can be tackled effectively only with the active help and co-operation of the machinery working in that field.

Role of the State

The question that next arises is whether there is any hard and fast rule demarcating the role of the State in a democratic set up. Social Welfare programmes which are in the nature of statutory obligations have to be primarily initiated and executed by the Government with its own set up, till such time as voluntary organisations capable of carrying on the work come forward to execute the plans. The converse is also true. Where the Government has not come forward to discharge its obligations it is equally the right of voluntary organisations to do the pioneering work. Thus in a democratic State like India there cannot be clear cut demarcation generally, regarding the respective role of Government and voluntary agencies in executing Social Welfare Schemes. They are complementary and supplementary to each other. But in the matter of securing the co-operation of voluntary agencies in any particular field, care should be exercised by Governments to treat the voluntary agencies with all the respect and consideration they deserve. It is a joint endeavour in a common cause. There must be equality of status among the co-operating agencies, Governmental and non-governmental.

Need for Education

In the Third Five-Year Plan the Government have given high priority for moral and social hygiene programmes and the enforcement of the Suppression of Immoral Traffic Act of 1956. The role of public and voluntary organisations in the matter of implementing social welfare programmes under the Third Five-Year Plan is important. It may be stated that no plan of Government for social welfare will succeed without public co-operation. It must be the co-operation of the many and not a handful alone, of every adult, male and female, in the community taking a lively interest in our social problems and actively assisting in the implementation of the various schemes of the Government. This must be also at the village level The panchayats in their new role must take an active part in the implementation of all our social welfare problems. If our social problems are tackeled at the panchayat level they will not assume the menacing dimensions and the complex nature they have assumed in urban areas and all over the country.

Why do social problems arise ? Apart from the social and economic causes, the lack of civic sense, the lack of public spirit, and the lack of realization of civil and moral duties by the people in dealing with fellow human beings, may be said to give rise to complex social problems. Therefore, if optimum public co-operarion is to be secured, it should be the duty of voluntary agencies and social workers to rouse the common man at the village level to his responsibilities and obligations, to demonstrate not only in individual life but in dealings with the community and individuals how one should act as an ideal citizen. Why is it that the public does not realise this ? It is due to wrong up bringing, the absence of proper instruction and guidance in the matter of correct and healthy social behaviour, conduct and etiquette, among the youth. The home which has to play a very large part in this matter has failed to do so, on account of the need for the mother and the father, particularly among the lower strata of society to go early for work and return late at night, leaving their children to fend for themselves. No wonder that children of such parents always have a knack of getting into bad company and becoming problem children having been denied the necessary training for life, and deprived of the capacity and character to face life and its problems boldly and of the opportunity of becoming a useful member of society. This has naturally resulted in a crisis in character all over the country. Though they take different shapes in different places they suffer from the same malady; namely wrong upbringing or no upbringing at all. Therefore, if public co-operation is to be assured it is imperative in the present set up of our country, that regular instruction in the matter of social duties and responsibilities should be imparted to youths and adults at all levels, particularly in villages, to bring about National Integartion physically, mentally, and emotionally. In this field the scope for non-official agencies is unlimited.

Growing Awareness

For instance in social welfare and civic matters which have an immediate bearing on social defence, it is necessary, nay, urgent, that we should concentrate in creating a feeling of awareness among the people in the matter of

Chief Minister Kamaraj with guests at the Raj Bhavan reception to the Commonwealth Press Union Delegates given by the Governor.

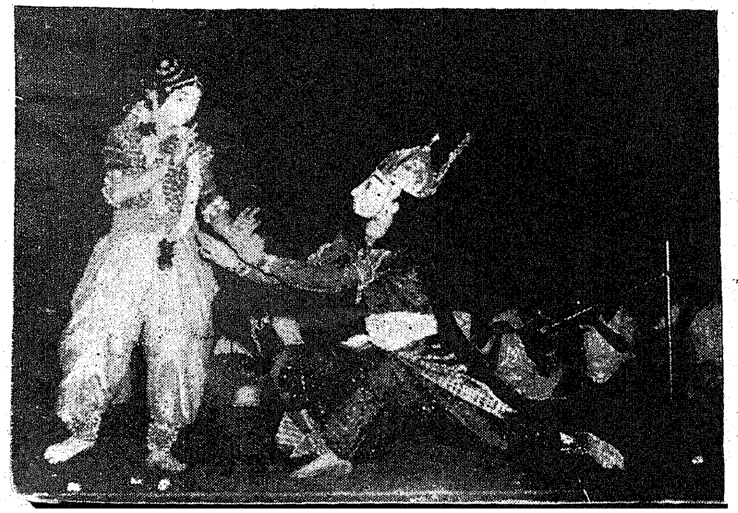
cleanliness, sanitation, hygiene and particularly in the matter of social hygiene. As far as social hygiene is concerned it will be a first class piece of social work if the provisions of the Suppression of the Immoral Traffic Act are popularised among the adult population, who must constitute themselves as the unofficial policemen for this purpose. Such public participation in social and civic matters, creates an atmosphere in the community conductive to the growth of healthy and good human relationship. What we require therefore in our country is a vigilant active and purposeful citizenship. Hunce public co-operation is a *sine quo non* for a permanent and lasting achievement in this field of social defence.

Democracy without public participation has no meaning and cannot exist. Therefore, if our welfare schemes under the Third Five-Year Plan are to succeed, they should be implemented by the enthusiastic co-operation of all concerned. The Union Government in its anxiety to achieve the goal of a welfare State, has been getting financial and technical help from various countries in the shape of loans. This has already made considerable impact on the people. There is now a growing desire on the part of the common man that the programmes should be intensified so that we may assure for our countrymen a higher standard of living as well as a respected and honoured place among the nations of the world. This can be possible only with the whole hearted co-operation of the public.

Public Co-operation

All social programmes are meant for the people. Therefore people should study, discuss, formulate and suggest suitable modus operandi for social welfare programmes and take an active part in implementing them. It is by such measures alone that we can mould our future, consistent with our conception of an ideal, healthy, strong and vigorous community. If the public do not participate, who else can ? Are we to bring in foreign experts to help us for all time ? We must have our own experts and techn'cians. What is now needed is a fresh and vigorous attempt and it must be an all out effort to knit the various sections of the community into one integerated whole, without distinction of high and low, caste or creed. If those in the community, who are enlightend and are conscious of their social and civic responsibilities, who are enlightend and have leisure should offer their effective co-operation to Government, the realisation of this much desired and long delayed ideal will be reached within a very short time. This will also ease the burden that both the Government and voluntary agencies have to shoulder in respect of social welfare programmes. And the gain to the nation in the shape of increased happiness and the diminution of misery and suffering all round, will be something enormous which cannot be assessed in terms of rupees and naye Paise.

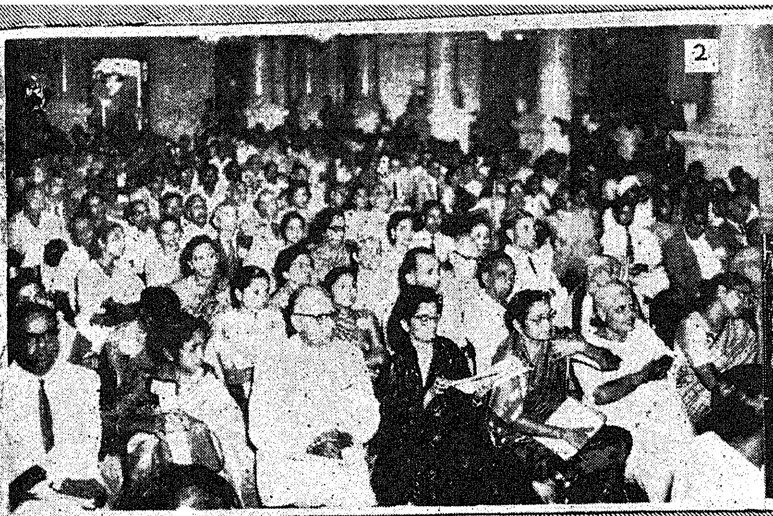
As part of the Inter-State exchange of cultural troupes, a party of artistes from Bihar presented the famous 'chow' dances in the city recently. Picture shows a typical sequence from the programme.

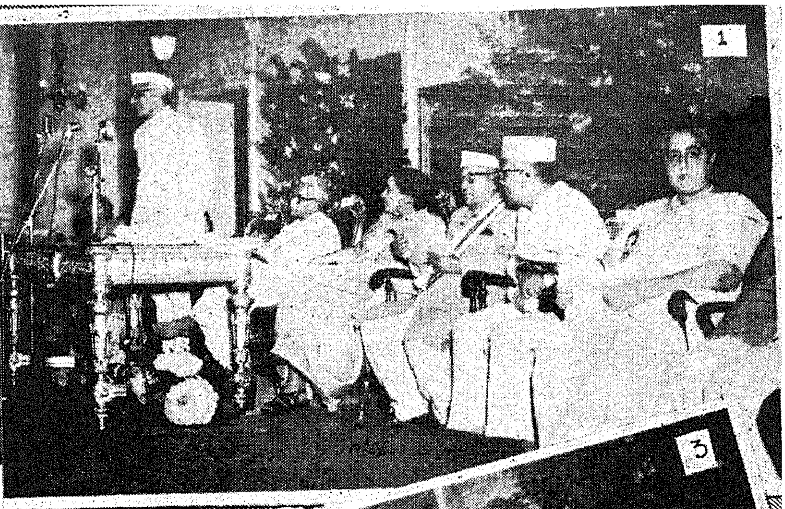


Noble Mission

Planning implies the mobilization of the country's resources in men and money for the achievement of definite ends. To secure public co-operation, i.e., co-operation of the community's resources in men and money, in addition to those of the State, our efforts should be directed towards the moulding among the people of a healthy and helpful attitude towards social welfare programmes. When social and national consciousness of the community as a whole is aroused public co-operation will take concrete shape by the public assistance that will be forthcoming both in material and physical terms for the various plans of social welfare.

Though the Government may formulate plans and provide funds for their implementation, the effort of the Government alone without the active co-operation of the community will not yield the expected result even partially. To make a success of the plan and the social welfare programme under it, like the programme under social defence, people must of their own accord come forward, take the initiative and through their voluntary effort make full use of the facilities provided by Government to tackle this particular problem. It is only when a large number of people, drawn from all sections take to social defence that the problem can be tackled to a larger or smaller extent depending on the number of voluntary agencies participating in the work of social defence. It is no doubt an inspiring and noble mission, but one that requires constancy and courage. Voluntary agencies can play several roles depending upon their resources, trained personnel, equipment and experience. In the first instance, there is need for a widespread training to those engaged in this field of work. The training of prosepecting voluntary workers, in service training and refresher courses to workers of voluntary agencies are vital for strengthening





TOWARDS A *Cleaner Society*

1. Union Education Minister Shrimali inaugurating the Ninth All-India Moral and Social Hygiene Conference held at the Rajaji Hall recently.

2. View of the audience.

3. Home Minister Bhakthavatsalam delivering the presidential address.

4. Srimathi Lourdhammal Simon, Minister for Local Administration, opening the exhibition.

5. The Union Education Minister and the Home Minister being shown round the exhibition.

the army of workers engaged in social defence work. Secondly, voluntary agencies can very usefully undertake research programmes, which are likely to be of great help to Government in testing the efficacy of the existing laws and for voluntary agencies to adjust their schemes of welfare work in the light of the experience gained by research workers. Rescue of victims from brothels, their rehabilitation, are again tasks which can be safely entrusted to well trained and reputed voluntary agencies. This implies the active and continuous assistance of the Government aided by legislation. Education of the public about the devastating evils of prostitution and the problems relating to immoral traffic, medical and public health measures, training of victims to become economically self-dependent, with a view to their ultimate rehabilitation and absorption in the community as self-respecting citizens, are all items of work which can be succesfully done by voluntary agencies.

The Public and voluntary agencies can play a very important role if they would undertake to introduce in schools lessons on sex education suited to various age groups along accepted lines, start child guidance clinics, marriage guidance clinics, family welfare clinics, parent teacher counselling associations, and centre for treatment for V.D., etc.

Lastly, it is the public and voluntary agencies along that can advocate a change in the way of life of our people to suit the changing pattern of society. Some of our ways of life, community practices, and customs have become meaningless and out-moded and positively harmful to the healthy growth of the community. A careful study of some of these should be made and such modifications as would be desirable should be made on a community wide scale without violently disturbing or bringing about a break with the roots of our wholesome culture and tradition.

Industrial Estates on Co-operative basis

As many as 100 industrial estates would be set up on a co-operative basis during the Third Plan period. Avenues are also being explored for getting institutional finance for these co-operative industrial estates. There were nearly 30,000 industrial co-operative societies all over the country at the end of 1959-60, as compared with 20,000 such societies at the end of 1957-58. The largest group among the industrial co-operatives is the weavers societies, which number over 11,000. There are over 9,000 such societies covering khadi and village industries. A scheme has been sponsored for sanctioning share capital loans, by Government to members of industrial co-operatives. The Reserve Bank has offered facilities of financial accommodation available to the co-operative banks to the handloom co-operatives as well. A Guarantee Scheme has also been evolved, under which 90 per cent of the loss incurred by the co-operative banks on loans to the industrial co-operatives would be borne by the Government. This scheme is separated from the Credit Guarantee Scheme, which the Reserve Bank is operating in selected districts for promoting small-scale industries. Another step which has been taken relates to the setting up of the industrial co-operative banks at the State level in Mysore, Uttar Pradesh, Rajasthan and Madras and at district or regional levels in Gujarat, Maharashtra and Mysore States.

The Story of Lac

J. DHAYANAND RAO, *Forest Utilisation Officer, Madras.*

Most of us hear disc music frequently, but few of us know from what gramaphone records are made. All our confidential letters, covers and packages, we seal with sealing wax, but very few of us know where the wax comes from. We would all be surprised to learn that into the making of all these and many more goes an animal product called lac, which is the resinous secretion of an insect. In this article, the author discusses lac farming in India and its prospects.

Most of us hear disc music frequently but few of us know from what gramaphone records are made. All our confidential letters, covers and packages, we seal with sealing wax, but very few of us know where the wax comes from. We would be surprised indeed to learn that into the making of all these and many more goes an animal product, a secretion of an insect.

Lac which is one of the chief constituents of the disc and the sealing wax is a resinous insect secretion. The lac insect feeds and thrives on the sap of certain plants. By means of special structures it is able to pierce the outer layers of succulent branches and reach the sap. Feeding on the sap, it grows and secretes resin.

These lac insects are located on the tender and succulent tips of branches. These occur in thousands and the secretion from each, coalasces with its neighbours so that a complete encirclement of the twig occurs, thickness of the secretion depending on the health of the brood and succulence of branches. When the lac is mature it is harvested scraped, dried, graded and sold. Usually two crops can be obtained per year.

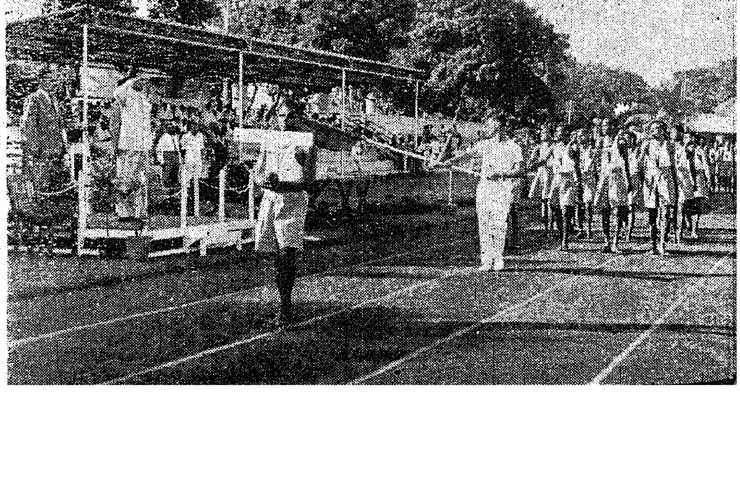
Lac yielding trees

Trees on which lac can be grown are given below :—

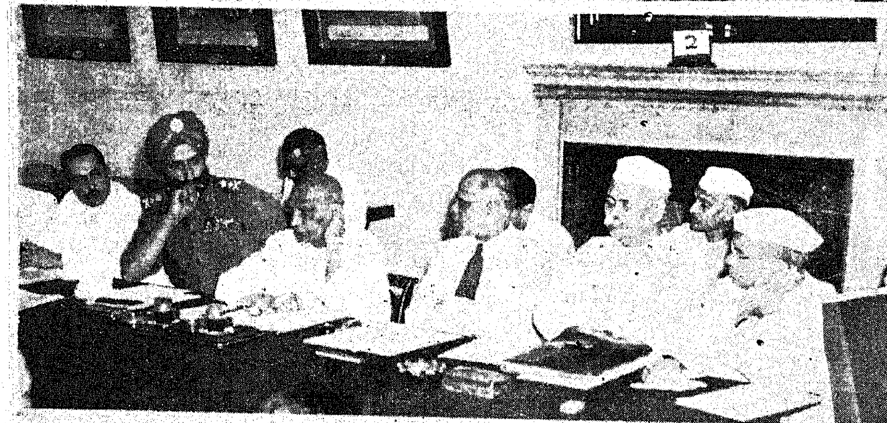
1 Butea monosperma (Palas).
2 Zizyphus jujuba (Ber).
3 Schleichera trijuga (Kusum).

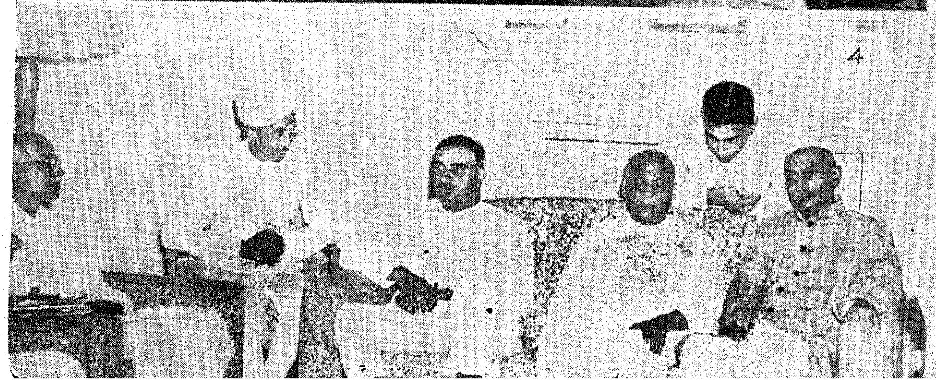
4 Zizphus xylopyrus (kottaielandai).
5 Acacia arabica (Babul).
6 Cajanus cajanus (Toverai).
7 Leea aspera.
8 Shorea talura (Talavi).
9 Certain Ficus species.
10 Pithecolobium (Rain tree).

Lac cultivation can be undertaken by any person who has a few trees in his compound. Usually trees have to be pruned and fresh and succulent branches allowed to develop. (Branches above 2″ thickness should not be cut). When fresh branches have appreared (after 12 to 18 months) ' infection ' of these branches has to be carried out.

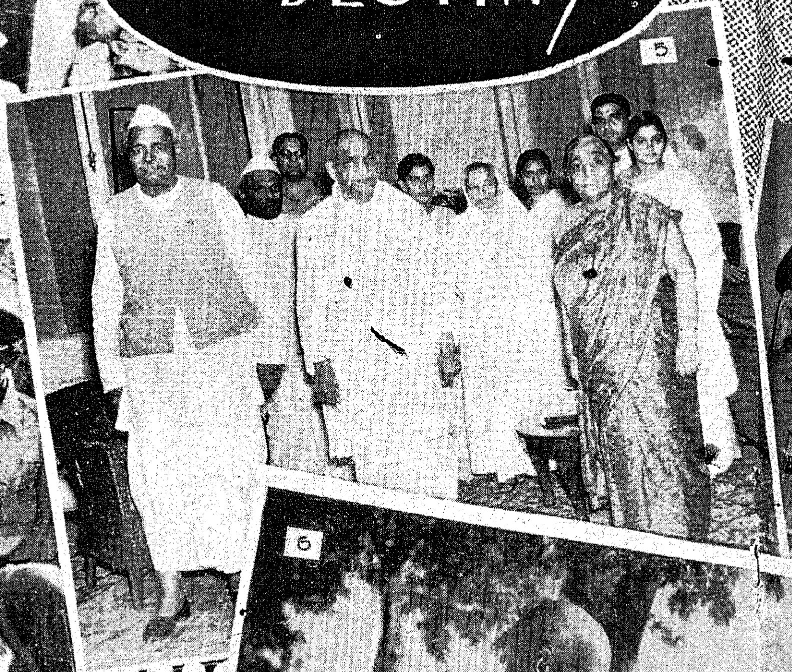


The salute being taken at the ceremonial march-past in connection with the Madras Fire Services Annual Sports held at the Rajarathnam Stadium recently.



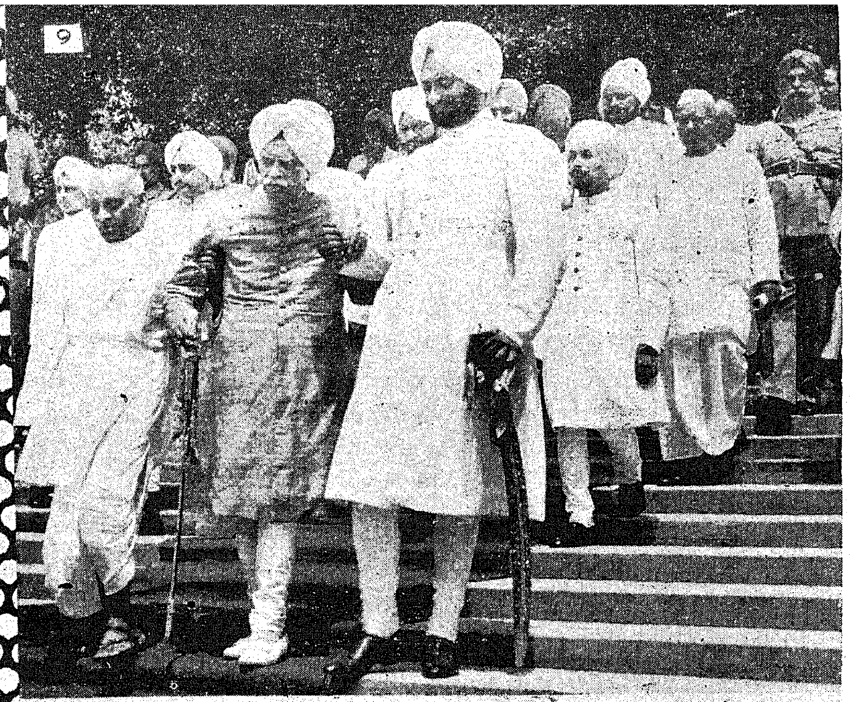


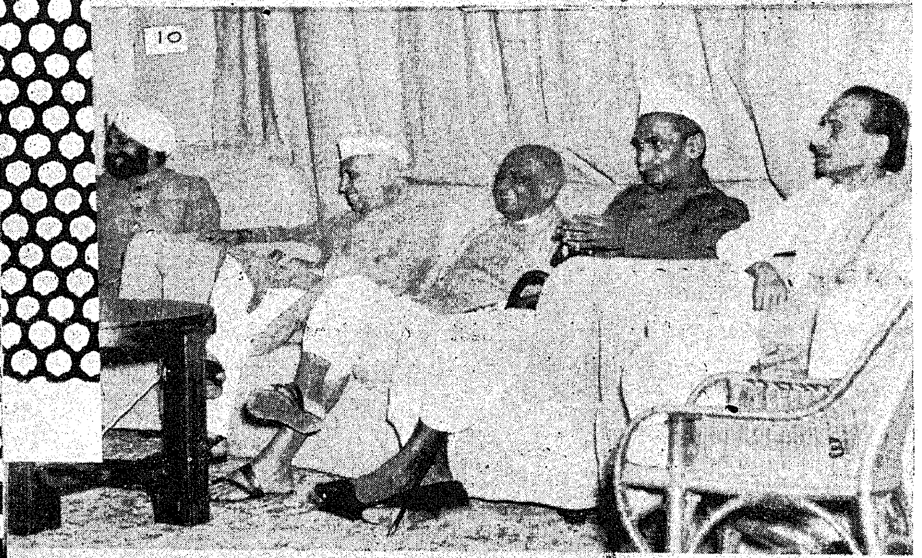
Man of DESTINY

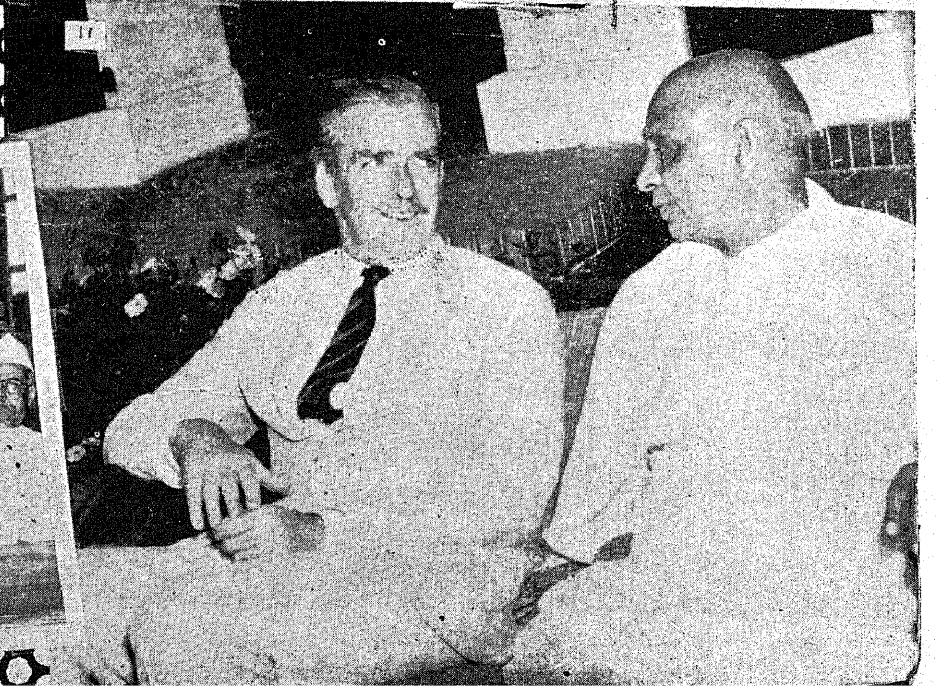


To the Left : Being greeted by the Vice-Chancellor of the Banaras University which conferred on him the Doctor of Laws degree.

1. Being presented the commemoration volume published to honour him.
2. Conference of States and Provinces.
3. With members of the Royal Indian Air Force.
4. Meeting of Rajpramukhs and Ministers.
5. With Pandit Pant and Mrs. Sarojini Naidu.
6. At the Rajkhot Samadhi.
7. With Lord Mountbatten.
8. Being sworn-in as Union Home Minister.
9. With Princes of Indian States.
10. With Nehru and Prasad.
11. With Sir Anthony Eden.







Infection is carried out by means of tying twigs containing young lac insects. These are known as brood lac sticks. These sticks have to be tied at the base of these fleshy branches. Two or three brood lac sticks have to be tied and this should be done in such a way as to facilitate easy migration of the insects from the brood lac sticks to the fleshy branches. After three weeks, the brood lac sticks may be renewed and progress of infection watched. The first sign, the appearance of small reddish dots which slowly increase in size and area, merge and coalasce and form a continuous band. Now the crop is mature for harvest. This, in short, is the story of lac infection and harvest. It is quite simple and requires but little attention and can be taken up to augment one's resources. India today supplies roughly 70 per cent of wood requirements and over 90 per cent of Indian production is exported.

An important constituent

Lac is the most important constituent which goes into the production of furniture polishes, floor polishes, automobile polish, shoe polish and in varnishes too. Shellac is made from lac. Button lac, laxwax and sealing wax are a few of the other lac products. Synthetics at one time appeared to take the place of this natural animal product. But lac has certain qualities which are not found in the synthetic and so it holds its own still.

At present the effort to raise lac is restricted chiefly to the Forest Department. The Forest Department has set up nine lac farms all over the State in Madurai, Tirunelveli, Coimbatore and Nilgiris districts, and it is proposed to increase the lac farms to 15 during the Third Plan period.

The lac harvested from the present nine centres is collected at Cumbum (Madurai) and sold in auction twice a year after reserving necessary quantities for the making of polishes and varnishes at the Government Lac Factory, Cumbum.

It is hoped that the members of the public would come forward and attempt to augment their resources by growing lac in all suitable areas.

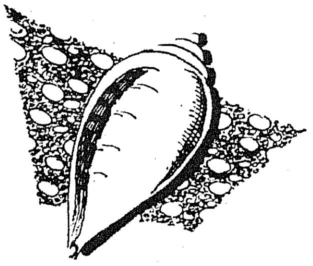
Drama contest on Indian Unity Theme

The Union Ministry of Scientific Research and Cultural Affairs has instituted a drama competition in English and languages mentioned in the Eighth Schedule to the Constitution for the best plays written after April 1, 1961, on the theme " India's Quest for Unity ".

A prize of Rs. 4,000 will be awarded for each of the best plays written in Assamese, Bengali, Gujarati, Hindi, Kannada, Malayalam, Marathi, Oriya, Punjabi, Sanskrit, Tamil, Telugu, Urdu and English. The length prescribed is a play of about two hours duration.

The Union Ministry might undertake the publication of any of the prize-winning entries for which the author should agree to give the necessary licence. A percentage royalty on the published price will be paid to the author on every copy sold.

The last date for receipt of entries in the Union Ministry of Scientific Research and Cultural Affairs is February 28, 1962.



The Valampuri Chank

K. A. DORAIRAJAN, *Assistant Director of Fisheries, Tuticorin.*

For a biologist, the Valampuri Chank may be just a freak of nature, but to the devout Hindu, it is a divine gift. In many ceremonial customs and rites, it figures as a sacred symbol. It is significant that during the last 50 years, only 33 Valampuri chanks have been officially recorded in Madras State though the general tally of Chank fishery in the State for the period works out to about three million. This article traces the history of chank fishery in Madras State with particular reference to the Valampuri Chank and the romance surrounding traditions and usages connected with it:

The " Chank " is the English term for the Tamil " Sangu" A reference to Tamil classics furnishes evidence of the existence of Chank Fishery in South India from the times of the Pandyan Kings over 1,800 years ago. Chank Fishery has been an adjunct to the more romantic pearl Fishery all these years. Both these Fisheries were sovereign prerogatives. The celebrated Nakkirar, was also a chank cutter by trade. The chank industry faded away during the 14th century which marked the close of Hindu Supremacy in the south.

The chanks (Turbinella Pyrum Linn or Xancus Pyrum) including the Valampuri varieties are large gastropod molluscan shells available in the sandy beds (known as parrs) in the seas off the coast of Tinnevelly and Ramanathapuram in the Gulf of Mannar and off the coast of Ramanathapuram, Thanjavur, South Arcot and Chingleput districts in the Palkbay. Some shells are fished off Malabar, Kathiawar and Ceylon waters also.

Property of Government

These sandy beds or parrs exist at depths from 2 fathoms to 12 fathoms and up, six to eight miles from the shores. The depth and distance of parrs vary from each coast. The chanks are sendentary creatures with very little movement. The animal has a very thick massive shell which forms a protective armour.

These chanks are the property of the Government (Government monopoly). and are fished by professional divers who go down to the sea bed and pick them up. These shells are disposed of by the divers to the Government or the lessees (where the fishery is leased out) at stipulated ates. Shells below a diameter or $2\frac{1}{4}''$ are not permitted to be fished and are also not paid for. The under-sized shells below the $2\frac{1}{4}''$ gauze are returned to sea for developing to full size, provided the animal is still alive. If the animal is dead the shells are confiscated by Government.

There are various qualities in the chanks and they vary considerably in size, shape and colour depending on the coast where they are fished. The best quality chank comes from the sea off Tinnevelly coast (off Tuticorin).

Varied uses

In India chanks have been put to varied uses since early times. As a trumpet (wind instrument) the conch shell has been in use from time immemorial. The commencement of the religious services in a Temple is heralded by the blowing of a chank. It is used as an instrument to call people to their religious rites and in the invocation of gods during the various religious ceremonies. It has thus become an instrument of reverence to the devout Hindu.

They are used in making fancy articles like bangle, rings ear-rings, pendants, etc. At present chanks are exported in large quantities to Bengal where these fancy articles are manufactured on mass scale. The Chank Bangle Industry of Bengal is a flourishing trade and the main source for the raw materials is South India. Chanks are also used as talisman for good breed of cattle. All over the Tamil

districts the custom of tying a small chank shell on the forehead or around the neck of valued cattle, is prevalent. The superstitious belief is that the valuable cattle would be protected from the 'evil eye'. They are also used as feeding cups for babies. The wormed and dead shells which are useless for manufacture of fancy articles are converted into lime by being burnt in kilns.

As currency

The Naga tribes of Assam were using chanks as currency a hundred years ago. The opperculam or the foot (the horny portion of the animal) of the chank is used as an adhesive in the manufacture of agarbathies. Chank flesh is also used as food by the poor.

The chank shell is used medicinally in the treatment of varied ailments. Chank Baspam is used as a specific for skin eruptions, Asthma, cough, rickets, gonorrhoea, dyspepsia. The use of the Chank Baspam by native practitioners may not be without reason. The carbonate of lime of these shells is laid down within a delicate animal membrane and its consequent minutely divided nature may possibly render it more easily assimilable and efficacious than non-organic carbonate. Whatever be the scientific explanation the fact remains that it is still used in Indian medicine.

Mythology

The cult of the chanks as religious symbol in India dates far beyond existing traditions. The Chank forms one of the two important emblems of "Lord Vishnu". Frequent reference to the chank is made in the Great Epics, "The Ramayana" and the 'Mahabharatha" wherein mention is made of the chank being used as a martial trumpet by Great Warriors. Mention is made of the following Famous conches :—

1. Paundra (belonging to the demon Paundra) was used by Bhima.
2. Devadatta (God given) was used by Arjuna.
3. Anantavijaya (Eternal Victory) belonged to Yudhisthira (Dharma).
4. Sughosna (sweet voice) belonged to Nakula.
5. The Panchajanya of Lord Krishna.

Thus each hero has his own immortal conch. The last mentioned conch originally belonged to demon Panchjana who lived in the underworld terrorising the Devas and others. It is mentioned that Lord Vishnu took the form of a Fish and dived into the sea and vanquished the demon and took possession of the conch. Thence forth the conch became an emblem of Lord Vishnu.

All the Avatars or incarnations of the Lord Vishnu are represented with a chank in the left hand and the chakra or the discus in the right hand. In all the cases the chank depicted is of Sinistral form (left handed chank). Such sinistral forms are a rarity so choice and valuable as to be worthy to form an adornament of a God.

Ceremonial customs

It has to be stated that once chank played an important role during the marriage ceremonies, though now a days the custom is scarcely practiced in South India. In Bengal, marriages conducted according to Hindu rites include placing of chank bangles upon the Bride's wrist. But in South India, the use of chanks during weddings is considered as inauspicious and chank blowing is associated with funeral ceremonies. The association of chank with weddings is more deep and intimate in Bengal than elsewhere.

Whenever a temple is built or a shrine is established a special libation to the God is offered from 108 to 1008 shells. These shells are also buried among the foundations of buildings. Many Hindus perform a special "Chankusthambanam" ceremony when misfortune is attributed to in auspicious sites and buildings.

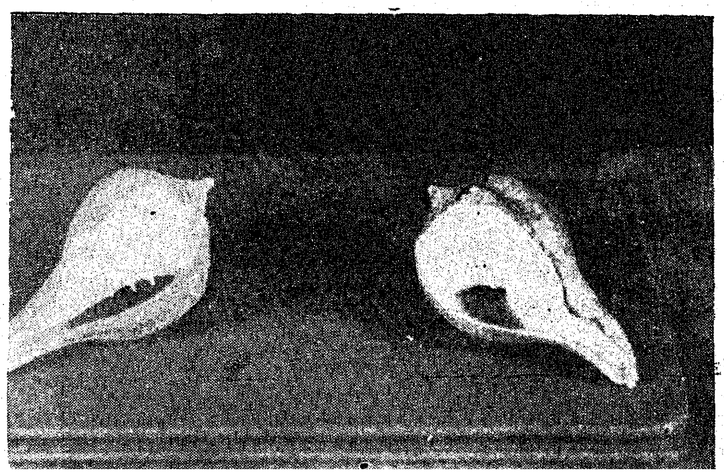
There is also another important custom among some Vaishnavites ; the initiation ceremony during which the symbol of the chank is branded on the left arm of the person being initiated and the symbol of the Chakra is branded on the right hand. Even women among these Vaishnavite families undergo this ritual.

Whatever be the origin of these customs and rites it is established beyond doubt that the chank stands as a sacred symbol among the Hindus.

Sinistral chanks

For a Biologist a Valampuri chank is just a freak among the common chank (Turbinella Pyrum). For a devout

Two chanks of nearly equal size, the one on the right with opening on the right side is the Valampuri variety while the chank to the left with mouth on the left is the Edampuri or common variety.



Hindu it is nothing short of a divine gift. The only difference is that the twist in the Valampuri shell is towards the left. So valampuri shells have their openings on the right side (when the shells are held with their narrow ends pointing away from the observer).

In the ordinary shell or the Edampuri shell the twist of the coloumella is to the right and so the mouth opening is to the left side.

The extreme rarity of these Valampuri shells can be gauged from the fact that only 33 shells were officially recorded during the last 50 years of Chank Fisheries in Madras State, though about 100 million chanks would have been fished all these fifty years. Thus the appearance of a Valampuri chank has worked out to one in 3 millions. This extremely rare appearance has given it rare value. In olden days the shells were valued at their weight in gold. Mr. James Hornell (1914) has estimated the value of a Sinistral shell at Rs. 50 per tola weight. Another curious factor gleaned from the data recorded is that most of the Valampuri chanks were fished off Ramanathapuram waters.

A record collection

Only in the year 1952 a record collection of thirteen (13) shells was obtained. During 1945-46 four shells were fished. Between 1945-46 to March 1960 a period of nearly 15 years, except for one chank fished in 1957-58, there was no appearance of a Valampuri as per recorded data. Three chanks were again fished in Sivaganga waters in 1960-61. During all these years from 1908 only on two occasions, Valampuri chanks were recorded from the Tuticorin sea, once in 1929 and again in 1957-58. The rest were all from Ramanathapuram waters. The fact that more of these shells are fished off Ramanathapuram district coast than from Tirunelveli area, where comparatively the Chank Fishery is of greater magnitute, is unexplainable.

Though extremely rare in nature, the existence of these sinistral shells in greater numbers in the sea in the proximity of the Holy Rameswaram shrine in Ramanathapuram district may be a matter of significance to a Devout Hindu. Many of the Chief Temples in India possess one or more of these shells. Even in Tibetan monasteries these shells were in use.

Fancy prices

As per present practice whenever a Valampuri shell is fished it is surrendered to the Government by the finder, except in the case of Ramanathapuram Chank Lessee who pays a royalty of Rs. 500 every year to Government towards cost of one Valampuri chank whether he be fortunate enough to find one or more chanks or none at all during the year. As per present practice the actual finder (diver) of the Valampuri shell is paid the value of 1,000 shells. The co-divers who have accompanied the fortunate finder are also paid small rewards. The Valampuri shells are sold by Government by tender system.

Three Valampuri chanks obtained from Sivaganga waters during 1960-61. The smallest chank in the picture has a sharp apex which is the protoconch not usually seen in the bigger chank. This gives an added touch of beauty to this chank.

It is ardently believed by all Hindus that the possession of this sacrosanct sinistral shell (Valampuri chank) confiers everlasting bliss and prosperity on its owner. These shells are purchased by devout wealthy Hindus at fancy prices for either presentation to temples or for their own use for their daily pooja. The sinistral shells are mounted in handsomely decorated gold and silver settings and are used as libation vessels in the services to God in Hindu Temples.

An Interesting Legend

An interesting legend hails from the holy city of Tirukalukundram, a Saivite shrine in Chingleput district about the chank. It is stated that once every 12 years a Sanku (Chank shell) rises from the large temple tank of this shrine, known as the Sankuthirtham. This miracle is traced to the ancient Sage Markandeya who once happened to visit this holy shrine. The legend states that Markandeya found that he had misplaced the usual pooja box which contained a sacred chank and being unable to perform the pooja at the shrine, prayed God to help him in his misfortune. Then there appeared a chank from the tank which enabled him to perform his pooja. Whatever be the authenticity of this legend it is established that the chank is a very important and essential article in the domestic worship of Hindus.

For a detailed study about the chank industry and the cult of chanks in Ancient India, readers are invited to go through the Book "The Sacred chank of India" by James Hornell, F.L.S. (1914) which is published in the Madras Fisheries Bullettin No. 7.

Urban Cooperatives AND DEVELOPMENT

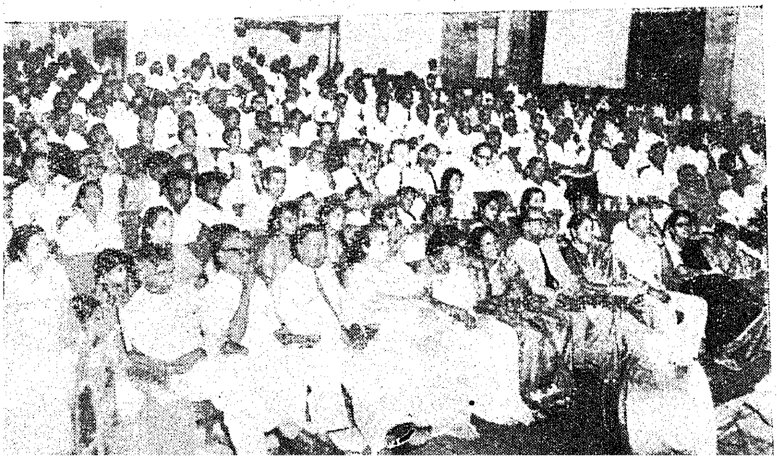
V. VENKATACHALAM, *Deputy Registrar of Co-operative Societies, Madras.*

Co-operation has an important role to play in the development of rural as well as urban areas The main problems of socio-economic development and what co-operation has done and is doing to solve these problems are outlined in this article with particular reference to urban areas. This feature is presented in connection with Co-operative Week celeberated recently in the City as part of the All-India Co-operative Week Celebrations.

Co-operation as we know, is a form of organisation, wherein persons voluntarily associate together as human beings, on a basis of equality, for the promotion of economic interests of themselves. Such organisations which were introduced into this country 57 years ago for providing agricultural credit and relieving rural indebtedness, came to be gradually extended to cover every field of human activity.

The Planning Commission recognised Cooperation as "an instrument of democratic planning, combining, initiative, mutual benefit and social purpose ", and observed that the success of planning should be judged, among other things, by the extent to which it was implemented through co-operative organisations. Co-operation has thus an important role in the development of rural as well a urban areas in the present tempo of development under the Second and Third five Year Plans.

A section of the delegates at the Town and Country Planning Seminar held in the city recently.



Main Problems

The main problems of socio-economic development in urban areas to be tackled through co-operation are the following :—

(i) Dispensing credit to large classes of people who live by occupations other than agriculture including artisans, traders and employees under Government or other public or private bodies.

(ii) Supplying provisions including foodgrains and groceries to the consumers to the best advantage, reducing trading costs.

(iii) Supplying milk, an indispensable diet article from infant to adult, in sickness or in health.

(iv) Providing credit for constructing houses or improving existing houses.

Credit for Traders

Credit for artisans or traders in urban areas is provided by co-operative urban banks and credit for employees of Government or other public or private bodies is provided by the various employees' credit societies. There were 158 co-operative urban banks in the State on 31st December 1960 with 4·38 laksh of members and share capital of Rs. 113·56 lakhs. Their working capital amounted to

Rs. 873·30 lakhs and they held deposits to the extent of Rs. 691·84 lakhs, constituting 79·27 per cent of their working capital. They issued loans amounting to Rs. 414·76 lakhs during the half year ending 31st December 1960 on the security of deposits, mortgage of immovable properties, pledge of gold jewels, etc.

The Banks which have storage facilities also issued loans on the pledge of agricultural produce and merchandise. They provide banking facilities like collection of bills and cheques, transmission of funds, etc., and even discounting of bills is undertaken by a few efficiently run big banks. Government have recently sanctioned Rs. 60,000 to 3 urban banks at Rs. 20,000 each (Rs. 15,000 loan and Rs. 5,000 subsidy) for constructing godowns.

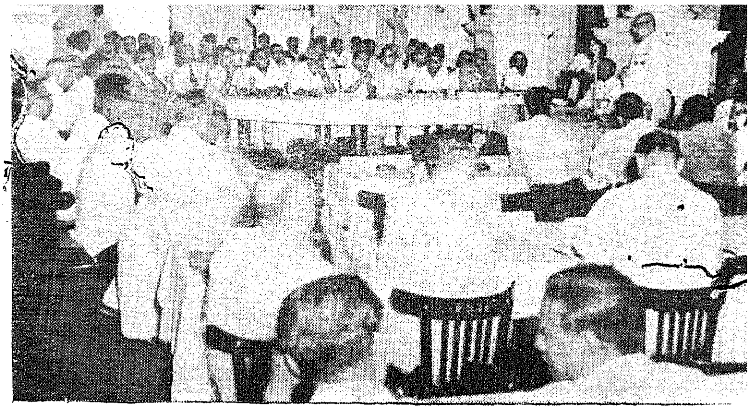
Employees' Societies

There were 563 employees societies on 31st December 1960 with 2·94 lakhs of members and share capital of Rs. 147·01 lakhs. They issued loans amounting to Rs. 706·11 lakhs during the half year and loans amounting to Rs. 596·01 lakhs were outstanding on 31st December 1960. They held deposits to the tune of Rs. 298·34 lakhs which represented 52 per cent of their working capital. These institutions render commendable service to their members by not only providing them with cheap and timely credit for essential purposes but also inculcating the habit of saving among them by tapping monthly recurring thrift deposits to be ultimately transferred into fixed depoits.

Primary Co-operative Stores in towns or semi-urban areas are the organisations which secure goods and services for thier members to the best advantage, reducing trading costs. There were 492 such stores on 31st December 1960 with 3·06 lakhs members and share capital of Rs. 44·53 lakhs. They supplied foodstuff, textiles (both mill and handloom), groceries infant foods, drugs etc. They purchased goods worth Rs. 545·81 lakhs and sold to the value of Rs. 603·91 lakhs during the half year. They have built a total Reserve Fund of Rs. 89·56 lakhs on 30th June 1960.

Premier Co-operative

The Triplicane Urban Co-operative Society Limited, is the biggest premier co-operative stores of the State. The business of the co-opeative stores is generally characterised by sale at maket price, sale for cash and sale to members. All the stores rendered yeomen service during the period of scarcity created by war. They have made a name as fair distributors of controlled commodities. Government have extended to them the following concessions to encourage their business and enlarge their clientaele: 1. Sales to non-members is permitted upto 31st December 1961, 2. Exempted from the levy of supervision fees year after



Council Chairman Cherian addressing the Town and Country Planning Seminar held at Rajaji Hall recently.

year; 3. Import licences are given to stores for certain articles subject to certain conditions; 4. Preference is shown in allotting fair price shops and distribution of scarce commodities.

During the Third Plan

The following assistance is proposed for Co-operative Stores under the Third Five-Year Plan: 1. State Participation in the share capital of 100 Co-operative stores subject to a maximum of Rs. 2,500 in each; 2. Revitalising of 100 stores by subsidising the cost of managerial staff on a graded scale upto Rs. 900 for the first year, Rs. 600 for the second year and Rs. 300 for the third year; 3. Providing 50 Stores with a loan of Rs. 5,000 each for installing coffee grinding machinery; 4. Providing 20 stores with loan of Rs. 20,000 each for installing oil crushing machinery.

With all this assistance from the State, the Co-operative stores can look forward to increase their services in urban areas.

Milk supply

Milk supply in urban areas is of special importance to preserve the health of the urban population. A greater part of the milk required for urban supply has to be pooled from villages, processed or pasteurised and distributed. The experiment was tried in the Madras Co-operative Milk Supply Union in 1927 and it was gradually improved by installing a pastuerisation plant in 1938. The union is now handling about 5,000 M.Ms. of milk a day. Encouraged by the experiment, the Coimbatore Cooperative Milk Supply Union installed a pastuerisation plant at a cost of Rs. 11 lakhs under the Second Five-Year Plan and it is to be commissioned shortly.

During the Third Five-Year Plan period it is proposed to have a plant in Madurai Co-operative Milk Supply Union at a cost of Rs. 41·47 lakhs with aid from the United Nations International Children's Emergency Fund (UNICEF) to the extent of Rs. 16 lakhs in the shape of machinery. It is also proposed to instal such plants of smaller capacity

Chief Minister Kamaraj who gave a dinner at Hotel Connemara to meet the delegates to the U.N. Seminar on Industrial Estates is seen in the picture greeting the guests.

in the Co-operative Milk Supply Unions at Tiruchirappalli and Thanjavur at a cost of about Rs. 12 lakhs each, during the same period. There are now 21 Co-operative Milk Supply Unions in important towns of the State. There are also big co-operative Milk Supply societies in towns like Tirunelveli, Virudhunagar, Srivilliputhur, Kumbakonam, etc., supplying milk to the urban population there.

Housing

Housing is a primary need for every family next to food and clothing. The problem of finding suitable housing accommodation in urban areas became acute in 1947 on account of the rapid growth of population and the large scale migration of people from rural to urban areas as a result of the establishment of new industries, offices and educational institutions in towns and cities. In that year sites suitable for construction of houses in Municipalities and major panchayats were selected by special Committees appointed for the purpose by Government. After the sites were selected, co-operative housing societies of different types were started for constructing houses with the aid of loans provided by Government. There were 298 urban housing societies of all types on 31st March 1961 with 34,819 members and share capital of Rs. 172·28 lakhs.

These societies executed the following schemes sponsored by Government : (1) Low income group housing scheme intended for the benefit of people with annual income upto Rs. 6,000 ; (2.). Middle income group housing schbme intended for people drawing above Rs. 6,000 up to Rs. 12,-00 per year ; 3. State urban housing scheme under which the maximum loan admissible is Rs. 12,000 limited to eighty percent of the cost of construction of a house ; (4) Subsidsed industrial housing scheme of the Government of India for industrial workers under which 65 per cent of the ceiling cost of the tenements will be provided as loan and 25 percent as subsidy the balance of 10 per cent being contributed by the workers concerned.

Provision for loans

The loans under the above schemes are provided by Government repayable ordinarily in 20 years. The current rate of interest on loans to societies is $4\frac{1}{2}$ per cent under the Low Income Group Housing Scheme, $4\frac{3}{4}$ per cent under the State Urban Housing Scheme and 5 percent under the Middle Income Group HousingScheme. During the decade covered by the 1st and 2nd Five Year Plans, Government advanced loans amounting to Rs. 515·08 lakhs under all the housing schemes except the Subsidised Industrial Housing Scheme. Under the subsidised industrial housing scheme loans to the extent of Rs. 23·5 lakhs and subsidy to the extent of Rs. 3·65 lakhs were disbursed. 9,754 houses were constructed upto 31st March 1961 and 1686 houses were under construction on that date. It is proposed to issue loans to the extent of Rs. 500 lakhs under the above housing schemes duirng the Third Plan period.

In order to provide long term loans repayable in 15 years for redemption of mortgages on houses and for making additions, improvements or alterations to houses in urban areas, 31 primary co-operative house mortgage banks were formed upto 31st March 1961. They had 12,620 members with share capital of Rs. 11·53 lakhs. The loans outstanding against their members on 31st March 1961 amounted to Rs. 63·62 lakhs. The maximum loan admissible is Rs. 10,000 subject to 50 per cent of the value of the houses offered for mortgage.

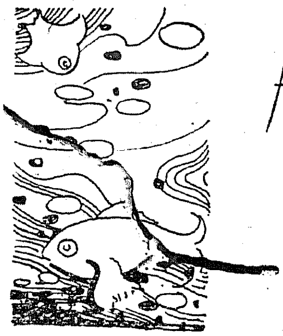
Liberal Assistance

All these banks are financed by the Central Co-operative House Mortgage Bank Limited, Madras which was started on 15th July 1959. Government have taken shares to the extent of Rs. 5 lakhs in this bank and sanctioned Rs. 6 lakhs as ways and means advance to the bank. They have also guaranteed the repayment of fixed deposits to be received by the bank to the extent of Rs. 25 lakhs. The Life Insurance Corporation of India has sanctioned a loan of Rs. 20 lakhs to the bank on the guarantee of the State Government. Thanks to the liberal assistance provided by Government through housing co-operatives and house mortgage co-opeative banks in the State, we can well hope that the housing shortage in urban areas will be eased to a considerable extent.

The goal

The overall satisfactory position of urban co-operatives in our State should not however, make us complacent. The Governor of the Reserve Bank of India in his inagural address at the last Tamil Nadu Co-operative Conference, very impressively informed us that the co-operative sector in Japan is a surplus sector which feeds the rest of the economy rather than being dependent on it. Urban Cooperatives, particularly the urban credit cooperatives in Madras State can develop and contribute to a considerable extent to raise the co-operative sector here to a similar level. Let us strive for that goal—*Courtesy* : A.I.R

At Man's Command



ARTIFICAL BREEDING OF FISH

V. D. SPURGEON, *Deputy Director of Fisheries, Madras.*

Fish varieties suffer adversities in breeding, in nursing their young ones and in protecting themselves from perils in the watery wilds. Hence the need arose for a technique to be evolved by which fish could be made to breed artificially. And from the time Sir Wilson set up an artificial 'hatchery' at Avalanche in the Nilgiris plateau in 1906, *artificial breeding of fish has progressed in Madras State. In this article, the author traces developments and discoveries that have revolutionized piscicultural practices in the State.*

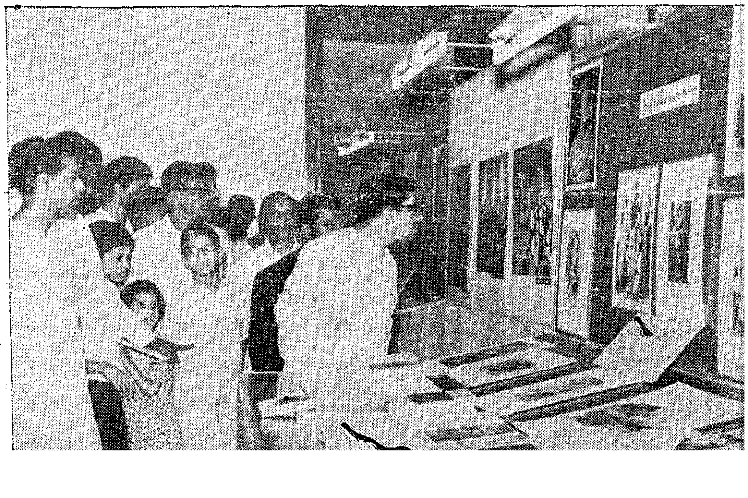
In Nature all animals breed and propagate their kind so that on Earth, there is an unbroken continuity of lives smalland big. Many among the animal kingdom, such as cattle poultry, game and fish are of immense service to Mankind. While cattle, poultry and game animals breed unhampered and do not suffer much natural handicaps in propagation, the group of aquatic animals like fish suffer adversities in breeding, in nursing the young ones and in protecting themselves against perils in the wild water environs. Pisciculturists have therefore been worrying for a long time to evolve some technique by which the fish could be made to breed at Man's command..

As early as 1906 an eminent fish culture expert by name Sir H. C. Wilson was appointed by the Government of Madras to look into such problems. He concentrated his efforts to start with on an imported European variety of fish called Trout and set up an artificial hatchery for it in the Nilgiri plateau at a place called Avalanche. The technique he evolved and perfected there in 1906 is being followed up successfully by the Madras Government Fisheries Department even to-day.

Sir Wilson's Method

By Sir Wilson's method of artificially breeding Trout, the sexually mature live male and female Trouts are caught gently and the female fish is kept in between two hands and given a gentle twist. Mature pepper-sized golden eggs of the fish pop and flow out of the fish and these are collected in a clean basin. Then a mature male trout is taken and instead of twisting, two fingers are pressed against the abdomen and moved towards the genital aperture. Milky milt spurts out of the male which is collected over the golden eggs of the female in the basin. A feather of a bird is then used to spread milt thinly over the eggs. Immediately eggs are fertlised. The eggs are transported in specially designed boxes from the river site to the Hatchery at Avalanche where the eggs are arranged neatly in single rows on grills and natural stream water is diverted and allowed to flow in gentle currents to aerate the eggs. The eggs hatch and young fish emerge. They are thereafter transferred to nurseries and reared with particular care and scientific precision.

Finance Minister Subramaniam witnessing exhibits in the 'Tagore in India and Abroad' exhibition inaugurated by him at the Rajaji Hall recently.



Such artificial breeding is not suitable for other kinds of fish in the State. Therefore Pisciculturists were in quest of yet another technique by which carps of our rivers could be made to breed at will. Carps form the majority of our riverine and lactustrine fisheries. Carps are a set of fish that look silvery white, grow very fast live mostly on vegetarian diet and amicably sojourn with other fish. In other words, they as a class do not eat other fish and thus do not spoil the fisherey wealth of our rivers and tanks.

The Real Problem

Hence throughout the world carps are acclaimed by fish farmers though to a fish eater carps present the problem of too mush tiny muscular bones to be got rid of at the table

But the real problem of carps is not in its " bony " nature but inits refusing to breedin man-made ponds and tanks and in captivity. To put it more clearly, carps breed only in fast flowing rivers with the advent of the monsoon and onset of freshets and in inaccessible upper reaches in difficult hilly terrain and jungly topography. So their seeds have to be collected every year and transplanted in ponds and tanks to rear them for food. This entails lot of hard work and results in a high percentage of mortality and low percentage of recapture at marketable stage.

To obviate such difficulties and to make sure that carps breed in kitchen garden ponds too at beck and call, the Government of India Fish Research Station at Cuttack has perfected a technique called " Induced Carp Spawning " last year.

By this method sexually mature male and female carps of the same species are kept alive in a pond and when needed they are caught by nets and they are administered with what are called " Pituitary Injections ".

Breeders are reared in fertile ponds manu ed with organic manure (example—cowdung). Between age two and three, the carps attain sexual maturity or 4th stage of gonadial development. If they are allowed to grow further, in the 5th stage the gonads are reabsorbed or become egg-bound.

Harmone Injection

When a mature pair of live carps is available in the pond, the pituitary gland preserved in alcohol is taken out and dissolved in 0·3 saline solution and taken in an injection syringe and injected in the area above or below the lateral line (of the sexually mature live male or female carp) near the Caudal peduncle. The dosage depends upon the " donor ". If the " donor " is a 10 lb. fish, it can be injected in a 5 lb. pair. The male and female fish so injected are released in a cradle shaped cloth or mosquito cloth net half immersed in the pond. Soon the male and female react to the harmone injection and indulge in amorus play and they rush together, jump, beat violently, and then " Spawn " after eight hours inside the cloth net. The " spawn " or fertilised eggs are collected and tranferred to a separate cloth (where no adult fish is kept). There they hatch out undisturbed.

After hatching out the hatchlings are removed to specially prepared nurseries which have been treated in advance with soap emulsion (with 50 lb. of soap and 15 lb. of oil per acre) to kill fish enemies. In 15 days the hatchlings attain one inch size—they are now baby fish.

The New Order

This discovery has revolutionized piscicultural practices in the State. What had been hitherto the old order of uncertainty in collection of carp seeds in out of the way places in rivers for growing in our tanks has given place to a new order. One, can now raise the fish seed in one's own home town, nay, in the very kitchen garden pool of the home.

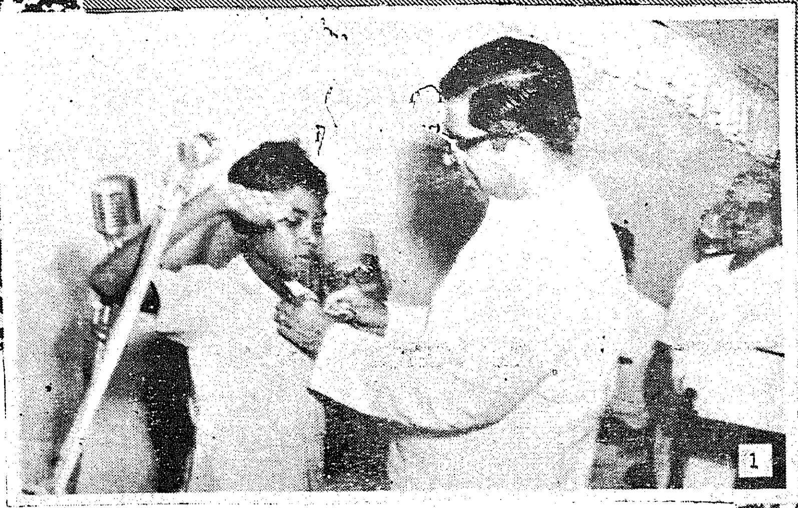
Further research is being conducted at the State Fish Water Biological Research Station at Bhavanisagar in Coimbatore District.

China, our next door neighbour, is forging ahead in carp fish culture. All derelict, uncared for and fallow waterspreads are rapidly changed not only into places of scenic beauty but also converted into potential fish breeding centres so as to feed her teeming population with this highly protective food.

Bright Prospects

Madras State is fortunate in having good rivers—the Cauvery with her tributaries Bhavani, Moyyar, Amaravathi and Noyyal and her distributary Coleroon and other rivers like Vaigai and Tambarabarani. Besides, there are the gigantic irrigation reservoirs like Mettur, Bhavanisagar, Amaravathi, Vaigai, Sathanur, Krishnagiri, Manimuthar, Thekady and Papanasam. The new one at Parambikulam is taking shape. Further there are many number of tanks and ponds. The induced spawning of carps now discovered will convert all pieces of water into veritable " fish -mines".

The Municipalities, Panchayats and private parties who own tanks or ponds that lie fallow can now raise a crop of succulent fish by making just a pair of adult fish breed, to order, for their food, pleasure and profit.

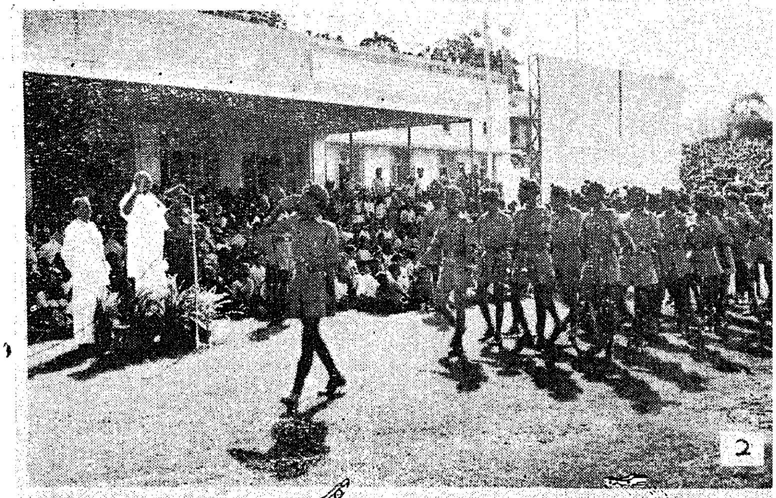


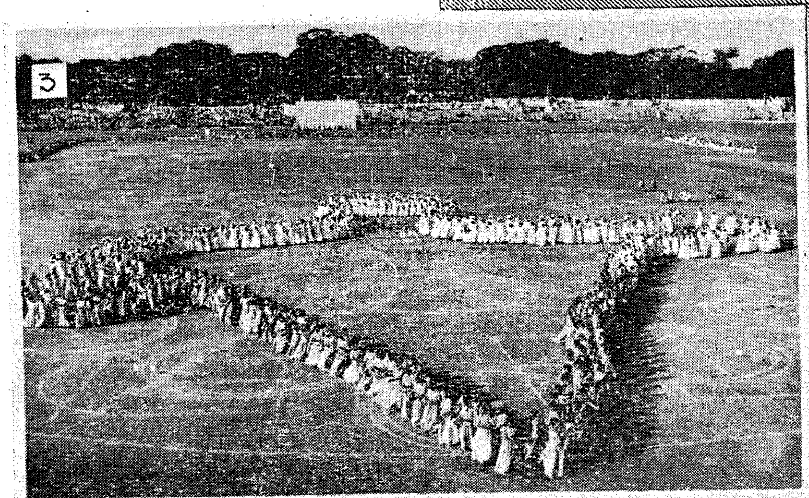
Children's day RALLY

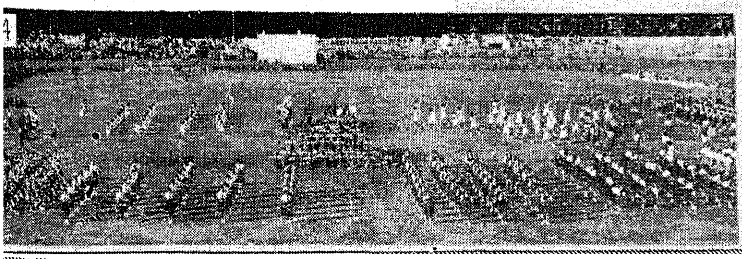
1. Finance Minister Subramaniam pinning the medal on 11-year old Nethaji of Ravuthanallur, South Arcot district winner of the National Award for courage, at the function held at the Corporation Stadium in connection with Children's Day.

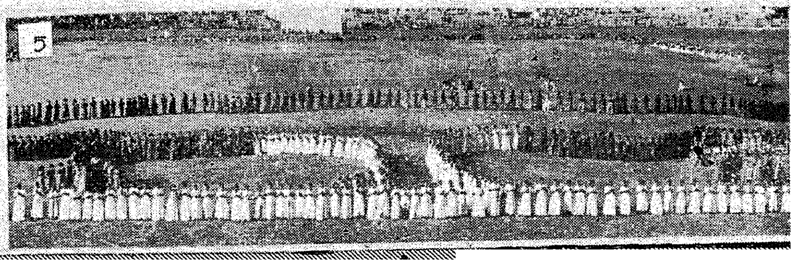
2. Chief Minister Kamaraj taking the salute at the march-past.

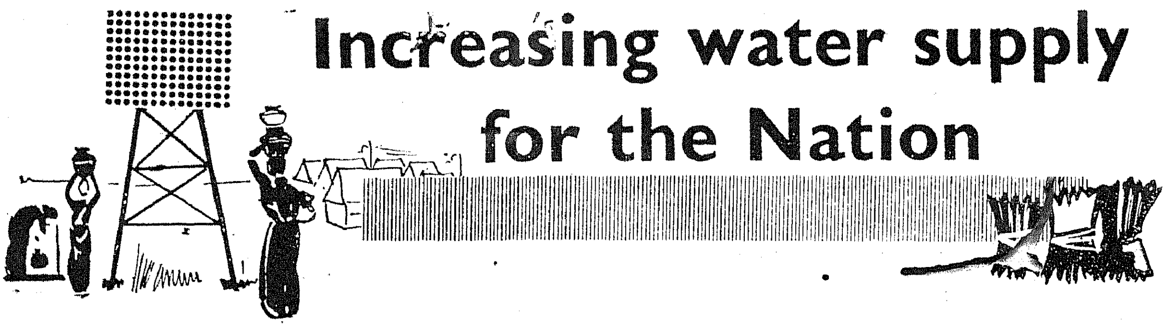
3, 4 and 5. Interesting formation snapped during the Rally.











Increasing water supply for the Nation

Provision of protected water-supply is vital for the programme of building a healthier India. With resources limited, the task is admittedly colossal. Nevertheless the subject has to be given a high priority in all Plans for developing and reconstructing the country. In this article presented in connection with National Cleanliness Day observed on Gandhi Jayanti, Sri V. A. Anandadoss, Deputy Assistant Director-General (Public Health Engineering), Directorate-General of Health Services, discusses a variety of sources of water-supply and their development.

The primary source of all water-supplies is rainfall. The rain, as it falls, gathers some dust and gases from the atmosphere and after reaching the earth's surface, some of it sinks into the ground, some evaporates and some runs off on the surface. The water that runs on the surface makes its appearance in streams while of the water that enters the ground, some is absorbed by vegetation, some is held by the soil and the balance percolates downwards until it reaches the impervious stratum. The water that has thus accumulated above the tight stratum forms the ground water or the sub-surface water. Thus, any water-supply has to be developed from one of the three broad categories, of sources viz. (1) direct from rain, (2) from surface streams, ponds and lakes and (3) sub-surface sources.

The question of providing safe water to our villages with a population of 359 million out of the country's 436 million has been engaging the attention of our governments. Large number of works have been taken up under the successive Five-Year Plans to provide drinking water-supplies to our villages. The work has been in the form of developing new sources of water-supply and also renovating old ones.

Basic Requirements

Any water-supply, either to an individual or for a community, should be safe, portable and adequate. The sub-soil water, when utilized as a source, has the advantage of being free from many impurities by virtue of the filtration it undergoes while percolating through the soil.

The sub-soil water, sometimes, under favourable geological conditions makes its appearance on the surface in the form of springs. These springs generally occur on slopes and more commonly in hilly areas and form a very good source for villages and towns nearly depending on the quantity they can yield all through the year. The springs should be protected from all contamination, though surface washings by constructing catch drains and leading the surface, flows away from the spring. The spring water can be collected in a small cistern from where a pipe can convey the supply to the house or the central distribution reservoir or street taps in the village. The supply can be completely made safe by covering the cistern to prevent any access to birds, animals and dirt and arranging for chlorinating the supply with a clear solution of bleaching powder continuously dropped into the tank by a simple chlorinator.

Dug Wells

When natural springs are not available, the shallow dug well is the most practical source of supply, but it requires far more attention and improvements as regards convenience and sanitation than it has generally received.

The location of the well should be such that the chances of pollution of the water in the well are eliminated. There should be no bore-hole latrine or soakage pit and the like anywhere within a radius of 8 meters from the well. This distance again depends on the porosity of soil, level of ground water, its slope and direction of flow from the well

and it will have to be considerably increased so that there is sufficient filtering action to arrest all the pathogenic germs from entering the well.

In order to prevent any direct pollution of the water in the well, it should have a good steining or side wall and should be provided with a platform and drain to collect and carry the spill water sufficiently away from the well. The use of ropes and buckets is likely to contaminate the well. The best method is to cover the well and use a pump to draw water. Hand pumps are not very expensive but require manual operation and simple maintenance in replacing a broken screw or handle or a worn out leather washer A more convenient arrangement, if there is sufficient money, is to install a power-driven pump set and pump the water into a tank for distribution.

The small community well can be located with advantage in the bed of a tank or a river in order to draw water of good quality and in good quantity. The supply can be pumped to a central place in the village for further distribution through a tank or stand-post.

Other Wells

Yet another way of developing a shallow sub-surface source for rural areas is by means of driven wells fitted with hand pumps. This method is specially suited for alluvial soils where it is possible to drive down a perforted pipe covered with wire mesh, called a filter point, and then pump out a supply. A platform and a lead-off drain will make the well complete and good enough for a small community.

It has been the practice in certain parts of this country to construct stepped wells where the user has to walk down the steps to collect water. Though the steps have provided an easy method of drawing a supply, the same has been proved to be the cause for a great public health problem. The wells have played an important role in the transmission of guineaworm.

The first remedial measure to be undertaken in this case is only to cut down any human access to the water by closing the steps. The further improvements to be carried out are to cover the well and provide a pump.

Rural Water-supply

The renovation of old wells has also been engaging the attention of the agencies providing rural water-supplies. Apart from deepening the wells and cleaning them up to increase the yield, steps should be simultaneously taken to prevent pollution. The well should be provided with a good steining, a cover, platform and spill water drain and a pump. Any bore-hole latrine or soakage pit and the like within a radius of 50 feet should be avoided. Education of the people in the use of hand pumps and their proper maintenance should also go side by side with the provision of protected water-supply to rural areas.

There are conditions which do not allow the development of adequate, portable and safe water-supply from local wells for individual villages. Under such circumstances, it may be necessary to go in for a distance source. In order to reduce the financial burden on the villages, it may be possible to group neighbouring villages and supply them all from a common source, but this may need careful planning, investigation and design by qualified public health engineers.

Urban Water-supply

The provision of a water-supply to urban areas is different from that for rural areas in certain ways. Firstly, the *per capita* consumption of water is higher than in rural areas. While a supply of 5 to 10 gallons *per capita* per day may be sufficient to meet the requirements of a rural community, a supply of 15 to 25 gallons may be necessary for mid-sized towns and a supply of over 25 gallons will be necessary for a large sized town with its underground sewerage system and demands for industries, etc. The actual *per capita* supply provided should bear a relation to the actual needs and the financial capacity of the community that is to own the system. It will be unrealistic to plan a supply of say 40 gallons *per capita* per day for a village or a five gallons *per capita* per day supply for a city.

The Tube Well

For mid-sized towns, where geological conditions are favourable, deep tube wells can be developed as an economical safe and reliable source of water-supply. These tube-wells range from 70 feet to several hundreds of feet in depth and 1½″ to 18″ diameter. The number of tube-wells to be put down will depend on the yield of the well and the quantity of water to be supplied to the community.

Tube wells have been quite successful in river basins but at times the water drawn from great depths contains dissolved gases salts and iron. The simple way to remove the gases is to aerate the supply in a fountain or a cascade or a special aerator designed for the purpose. The dissolved forms of iron also get exidised during aeration and converted to settlable forms. The water can then be settled in tanks and then supplied. Sometimes, certain chemicals like lime are added to accelerate the removal of iron.

The calcium and magnesium salts that get dissolved in the subsoil water during its passage through ground, contribute towards the hardness of the supply. The water has to be softened if the hardness exceeds the permissible

limit. One of the methods to soften the water is to treat it with lime and soda which precipitate the dissolved calcium and magnesium salts. The water is then settled filtered and supplied. Another method of softening is to bring the water in contact with certain artificial resins known as ion exchange. The ion exchangers have to be regenerated from time to time by a solution of brine.

Infiltration Gallery

There are quite a number of rivers which are dry for a good portion of the year but they carry appreciable quantities of sub-soil water within their beds. Under such situations, the infiltration galleries come in very handy to develop water-supply. These infiltration galleries can be considered as long horizantal wells. They are generally formed by digging up a deep trench, sufficiently below the lowest subsoil water level and laying an open jointed pipe-line enclosed by clean graded metal gravel and coarse sand. The trench is finally closed with cleaned excavated sand.

The water enters through the graded material and collects through the gallery pipe in an end well from where it is pumped out for supply. These deep trench-like filter galleries are used where the river is subject to uncontrolled flows; but where the flow is strictly regulated, a much wider and shallower basin, known as a "filter basin" is employed. Here, the controlled surface, flow itself, infilters through the bed of graded material and enters a system of collection pipes and the end well for being pumped out finally for supply.

Surface Sources

Supplies drawn from surface sources, namely, streams and tanks, as already mentioned, are not always free from pollution. Where special sanitary precautions have been taken, the water drawn from impounding reservoirs with protected catchments, may be bacteriologically safe but even the disinfection has to be done to make doubly sure that the supply is safe.

The water drawn from surface sources, when found contaminated, has to be filtered. When the water is found turbid with plenty of inorganic matter, it is first allowed to settle in a settling tank or a sedimentation basin for a sufficient time to remove the bulk of the settable matter. The water is then given the required treatment to make it fit for human consumption.

It is not always possible to settle all the solid matter in a sedimentation basin. This is specially so when the solids are present in a colloidal form. In such cases, the water has to be specially conditioned before it can be filtered and supplied. The water is treated with a dose of alum of ferric choride which forms floc that attracts all the colloidal particles and settles down, giving fairly clear water ready to be filtered. In order to carry out this pre-conditioning effectively and economically, laboratory tests have to be conducted regularly and the performance of the units watched carefully.

Slow Sand Filter Unit

The oldest and the simplest form of filter is the slow sand filter. This is simple to operate but occupies a large area. The standard rate of filtration is only 50 gallons per square foot per day. The filter consists essentially of an under drainage system on top of which graded layers of stone and gravel are arranged to form the foundation for a 30″–30″ thick layer of granular sand. Waters of very low turbidity alone can be treated in these slow sand filters. As the water passes through the sand, a slimy layer is formed on the surface of the filter. This layer arrests the bacteria in the water and the clear water is drawn out of the filter through the under-drain systems.

Rapid Sand Filter

The rapid sand filter, unlike the slow sand filter, can filter at a very high rate of 100–125 gallons per square foot per hour which is about 50 times as fast as the slow sand filter; but the water requires careful pre-conditioning with a suitable coagulant. The rapid sand filter requires very careful operation and frequent washing. Its run or interval between two successive washings is very short compared to the slow sand filter; but the washing of a rapid sand filter is done hydraulically and completed in a matter of few minutes. The time for washing any filter is determined by the loss of hydraulic head for the water to pass through the filter. It may vary between 1 to 3 days for a rapid sand filter and 4 to 6 weeks for a low sand filter The washing of a slow sand filter is done manually.

A close watch with the help of laboratory test is required for the proper operation of a rapid sand filter and in view

Srimathi Lourdhammal Simon, Minister for Local Administration, is seen distributing milk donated by the Catholic Relief Services to the children of the Corporation Higher Elementary School, Chetput, at a function organized for the purpose. The Archbishop of Madras presided.

of the special pre-conditioning of the water, the rapid sand filter can handle water of very high turbidities; on the other hand, the operation of the slow sand filter is much simpler.

Pressure Filter

There are few other types of filters which are used under special circumstances. Of these, the pressure filter is one. This comprises a closed steel cylinder containing the filter media and the under-drainage system. Water is forced through the filter under pressure. As it enters the cylinder, it picks up a small quantity of coagulant. The action is the same as in the rapid sand filter. This filter can deal with waters of low turbidity and are preferred for temporary installations in view of their portability and savings in elaborate civil structures.

Disinfection

All public water supplies must be disinfected before delivery to the consumer, whether the supply has been filtered or not. This is to ensure that all the disease-producing bacteria have been killed.

Chlorination is the most common and convenient method of disinfecting public water supplies. Chlorine is applied to the supply either in the form of a solution of bleaching powder (for small supplies) or as liquid chlorine (for larger supplies). An adequate period of contact (minimum half an hour) should be allowed to enable the chlorine to exercise its action.

While chlorination affords satisfactory protection against the more common bacterial agents of diseases at normal doses, it is not very effective against certain microscopic organisms such as the cysts of E. Hystolytica which are responsible for dysentery. For these and other reasons, disinfection cannot be a substitute for filtration.

Distribution

The method of distributing the supply to the consumer is also a specialised job when a large population has to be served with adequate quantity of safe water. In a small village, the villager generally has the time and personnel to fetch water from the common well or tap or the distribution reservoir. In bigger towns, the supply has to be delivered at the doorsteps.

The demand of water by the community also varies from hour to hour and season to season. The demand is generally on the increase from year to year as the town grows and its population increases. The distribution system has to be designed taking into account all these factors. A service reservoir or a balancing tank is generally installed to store up water during lean hours of supply and meet the increasing demand when the occasion needs extra flow in pipes. The system is designed not only to meet the variations in demand but also to ensure a minimum terminal pressure at the ends of the system.

Srimathi Lourdhammal Simon, Minister for Local Administration, who gave a dinner at Hotel Connemara to the delegates of the Norwegian India Foundation during their recent visit to the city is seen in the picture with some of the delegates. Sri Ramaiah, Minister for Electricity is also present.

Fairs and festivals are quite frequent in India. During these, large number of people from different parts of the country congregate for a short time and hence the arrangements of water supply to such fairs and festivals have to be planned carefully so that these gatherings do not serve as focal points for the spread of water-borne diseases. It is necessary that these places should be probvided with protected (piped) water supplies but until then, as tempo. rary measures, lorries fitted with pumps, filters and disinfection equipment should be maintained or temporary storage tanks and public standpoints should be put up.

Sea Water

The question of developing a public water-supply for drinking purposes from sea-water has also been engaging the attention of scientists and engineers but this is still at an experimental stage and the cost is prohibitive.

A water supply that is adequate in quantity and satisfactory in quality, is an essential amenity and hence, it is necessary to make plans well ahead for providing this amenity. Naturally occurring water often requires treatment to render it fit for drinking. Such treatment is aimed at rendering the water "æsthetically satisfactory and epidemiologically safe". The possible approaches in providing "protected water supplies" to rural and urban areas and the several problems encountered in water treatment have been dealt with.

Polluted water can cause severe outbreaks of epidemic diseases. Every care has to be taken to see that the wells yield safe water. When we are dealing with surface supplies, it is necessary to ensure that the treatment is adequate and effective so that the water, as it reaches the consumer, is *always* of a safe quality. The operator has to be ever vigilant as any lapse on his part can result in the outbreak of disease. The operator has to be well trained for his job and should realise that he is the guardian of the health of the community he serves.

Fruit Canning Industry

Science in the news

Everyday that passes in this Age of Science registers some important progress or other as a result of which new and improved techniques emerge to lighten the burden of the housewife, the common artisan, the small businessman and the big industrialist. This feature takes note of such developments.

The Indian fruits and vegetables canning industry currently produces just about 50,000 tons of canned products. In 1958 the output was only 32,000 tons comprising beverages (juices including synthetic products), 35 per cent; canned fruits and vegetables, 15 per cent; pickles, 20 per cent; murabbas, jams and chutney, 12 per cent; vinegar 3 per cent; and miscellaneous, 15 per cent. The Third Plan target for canned fruits and vegetables has been set at 100,000 tons.

In the absence of adequate facilities for preservation about 20 per cent of fruit production (60-65 lakh tons) goes waste. The Central and State Governments have now provided several incentives to the industry. These include loans for planting fruit gardens and for establishment of fruit preservation facilities, supply of sugar and containers at concessional rates, and technical assistance from various sources such as the Central Food Technological

Chief Justice Ramachandra Iyer is seen delivering the presidential address at the United Nations Day celebrated recently at Rajaji Hall.

Research Institute (Mysore), Jadavpur Universit[y] [Cal]cutta), U.P. Fruit Utilisation Department and Sections of State Departments. A scheme for s[etting] up regional research stations under the Central [Food] Technological Research Institute is also being impleme[nted] by the Council of Scientific and Industrial Research, N[ew] Delhi.

A tentative provision of Rs. 1·25 crores has been prop[osed] in the Third Five-Year Plan for expansion and deve[lop]ment of the industry. It is expected that the total [pro]duction of fruit and vegetable products by 1965–66 [will] go up to 100,000 tons; exports are also likely to go u[p to] 15,000 tons compared to 2,500 tons at present. [The] programme includes schemes for training growers in f[ruit] and vegetables preservation and setting up of peripa[tetic] mobile units. The capacity of cold storage for fruits [and] vegetables, estimated at 20 lakh maunds in 1955, is li[kely] to go up to 42 lakh maunds in 1965–66.

The Right Fruits

There exists wide scope for canning most fruits [and] vegetables grown in India but the fruits which offer b[est] possibilities are: (i) pineapple which can be culti[vated] extensively within a very short period; (ii) certain ty[pes of] mangoes which can stand sterilisation and whose fla[vour] does not deteriorate with high temperature or during storage; (iii) various types of citrus, pineapple and n[...] products; and (iv) fruit squashes and beverages of v[arious] kinds.

So far as vegetables are concerned good scope e[xists] for peas, green gram and tomatoes since all these [vege]tables are available fresh for a relatively short period

…re cheap and are too costly out of season; besides …anning presents no difficulty. Mango slices in …and in brine, canned pineapple, orange segments, … juices, mango chutney and a variety of pickles are … in demand in foreign countries.

…less Domestic Coke

… low temperature coal carbonisation pilot plant … went into operation recently at the Central Fuel …ch Institute, Jealgora (Bihar), will provide valuable …s data for designing commercial plants for the …tion of smokeless domestic coke by low temperature …nisation of coal.

…e pilot plant, installed at a cost of Rs. 10 lakhs, … capacity of 20-30 tons of coal per day. Built … entirely from indigenous resources, the plant is …fication of the one developed by the Fuel Research …, U.K. It can treat both caking and non-caking … and is particularly suitable for sized high-ash … from coal washeries.

…es the production of domestic coke, if required, the …n be …d as a gas plant or for production of coke …y-shaft iron-making furnaces or for carbide manu….

…sful Trials

…ugh formally inaugurated last May, the plant has …n continuous operation since January 1961 and … valuable process data on heat balance and tar …y have already been gathered. As a result of success…ials in this plant, the current wasteful practice of …production by open-stack burning of coal in *bhattas* …ery sites will become obsolete. The coke obtained …n-stack burning is inferior and it is not possible to … any of the valuable byproducts of carbonisation.

… potentialities of the L.T.C. process for the country's …conomy are great. Domestic soft coke requirements …an population in the next 10—15 years are estimated … million tons; demand from West Bengal and Bihar … put at 2·5 million and 345,000 tons respectively. …ent only 1·8 million tons of soft coke are produced … by open-stack method. A large number of cities …hern India can thus support L.T.C. units of 1,000—…ns of coal throughout producing 750—1,000 tons of …ss fuel per day and 5—7·5 million cubic feet of rich …s for use in manufacturing industries. The tar

Tableaux presented in connection with United Nations Day celebrated at the Rajaji Hall recently.

produced in these plants could be pooled and processed for production of diesel fuels and chemicals.

Medicinal Plants

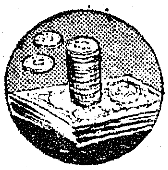
More than 2,000 plants, out of a total of 11,000 species found in India, are reported to possess some medicinal property or other, and are enumerated in the literature on indigenous systems of medicine. Often it is difficult to corroborate, by experimental evidence obtained from modern physiological and pharmacological tests, the medicinal value of the plants.

Systematic investigation of Indian medicinal plants started some three decades ago and some progress has been made as a result of active support and encouragement by the Indian Council of Agricultural Research, Indian Council of Medical Research and the Council of Scientific and Industrial Research.

Research is being undertaken in many institutions specially set up for the purpose and also in other research establishments and universities. Outstanding work has been done on the chemistry of Indian medicinal plants and several hundreds of them have been partially screened for their medicinal properties. Available information of Indian medicinal plants has been collected and compiled and many useful publications like the *Glossary of Indian Medicinal Plants* and the *Wealth of India* have been brought out containing results of investigations carried out in recent years.

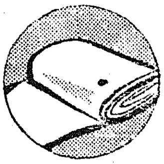
A special supplement of the Journal of Scientific and Industrial Research (August 1961) presents the results of a systematic and correlated research programme in progress for nearly a decade in the laboratories of the Ciba Scientific Department, Bombay, and the …ius Research Laboratory, St. Xavier's College, Bombay

WHAT THE PLAN MEANS TO YOU



Rise of Rs. 55 in per capita income

enough food for all



nearly 2 more yards of cloth

free and compulsory primary education

improved health services

14 million more jobs

pure drinking water for the villages

help implement the Plan through hard work, courage and enterprise for

A Good Life for Everyone